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Sequence 1 of 6 - 4 pages

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Docket No. 2000-0120

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5,525,464 June 11, 1996

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Docket # 50276-2050

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Docket No. 6000-4-PCT-US

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Docket No. 50P6064.4

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Sequence Listing - 09/904,214

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<213>Chlamydia trachomatis
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            20                  25                  30
Ser Thr Leu Ala His Leu Ala Met Asn Asp Phe Ala Trp Thr Thr Asn
        35                  40                  45
Gly Cys Ser Val Pro Thr Ser Ala His Thr Leu Ala Asn Gln Leu Ile
    50                  55                  60
Leu Arg Tyr Lys Ala Cys Ser Leu Tyr Ile Thr Ala Tyr Thr Ile Asn
65                  70                  75                  80
Arg Glu Gly Lys Asn Leu Ser Asn Ser Leu Ser Cys Gly Gly Tyr Val
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Gly Phe
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<210>3
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<213>Chlamydia trachomatis
<400>3

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            20                  25                  30
Ser Ser Arg Ser Lys Gln Cys Leu Lys Met Phe Ile Thr Lys Glu Leu
        35                  40                  45
Met Asn Arg Val Ile Glu Ile His Ala His Tyr Asp Gln Arg Gln Leu
    50                  55                  60
Ser Gln Ser Pro Asn Thr Asn Phe Leu Val His His Pro Tyr Leu Thr
65                  70                  75                  80
Leu Ile Pro Lys Phe Leu Leu Gly Ala Leu Ile Val Tyr Ala Pro Tyr
                85                  90                  95
Ser Phe Ala Glu Met Glu Leu Ala Ile Ser Gly His Lys Gln Gly Lys
            100                 105                 110
Asp Arg Asp Thr Phe Thr Met Ile Ser Ser Cys Pro Glu Gly Thr Asn
        115                 120                 125
Tyr Ile Ile Asn Arg Lys Leu Ile Leu Ser Asp Phe Ser Leu Leu Asn
    130                 135                 140
Lys Val Ser Ser Gly Gly Ala Phe Arg Asn Leu Ala Gly Lys Ile Ser
145                 150                 155                 160
Phe Leu Gly Lys Asn Ser Ser Ala Ser Ile His Phe Lys His Ile Asn
                165                 170                 175
Ile Asn Gly Phe Gly Ala Gly Val Phe Ser Glu Ser Ser Ile Glu Phe
            180                 185                 190
Thr Asp Leu Arg Lys Leu Val Ala Phe Gly Ser Glu Ser Thr Gly Gly
        195                 200                 205
Ile Phe Thr Ala Lys Glu Asp Ile Ser Phe Lys Asn Asn His His Ile
    210                 215                 220
Ala Phe Arg Asn Asn Ile Thr Lys Gly Asn Gly Gly Val Ile Gln Leu
225                 230                 235                 240
Gln Gly Asp Met Lys Gly Ser Val Ser Phe Val Asp Gln Arg Gly Ala
                245                 250                 255
Ile Ile Phe Thr Asn Asn Gln Ala Val Thr Ser Ser Ser Met Lys His
            260                 265                 270
Ser Gly Arg Gly Gly Ala Ile Ser Gly Asp Phe Ala Gly Ser Arg Ile
        275                 280                 285
Leu Phe Leu Asn Asn Gln Gln Ile Thr Phe Glu Gly Asn Ser Ala Val
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    290                 295                 300
His Gly Gly Ala Ile Tyr Asn Lys Asn Gly Leu Val Glu Phe Leu Gly
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Asn Ala Gly Pro Leu Ala Phe Lys Glu Asn Thr Thr Ile Ala Asn Gly
                325                 330                 335
Gly Ala Ile Tyr Thr Ser Asn Phe Lys Ala Asn Gln Gln Thr Ser Pro
            340                 345                 350
Ile Leu Phe Ser Gln Asn His Ala Asn Lys Lys Gly Gly Ala Ile Tyr
        355                 360                 365
Ala Gln Tyr Val Asn Leu Glu Gln Asn Gln Asp Thr Ile Arg Phe Glu
    370                 375                 380
Lys Asn Thr Ala Lys Glu Gly Gly Gly Ala Ile Thr Ser Ser Gln Cys
385                 390                 395                 400
Ser Ile Thr Ala His Asn Thr Ile Thr Phe Ser Asp Asn Ala Ala Gly
                405                 410                 415
Asp Leu Gly Gly Gly Ala Ile Leu Leu Glu Gly Lys Lys Pro Ser Leu
            420                 425                 430
Thr Leu Ile Ala His Ser Gly Asn Ile Ala Phe Ser Gly Asn Thr Met
        435                 440                 445
Leu His Ile Thr Lys Lys Ala Ser Leu Asp Arg His Asn Ser Ile Leu
    450                 455                 460
Ile Lys Glu Ala Pro Tyr Lys Ile Gln Leu Ala Ala Asn Arg Asn His
465                 470                 475                 480
Ser Ile His Phe Phe Asp Pro Val Met Ala Leu Ser Ala Ser Ser Ser
                485                 490                 495
Pro Ile Gln Ile Asn Ala Pro Glu Tyr Glu Thr Pro Phe Phe Ser Pro
            500                 505                 510
Lys Gly Met Ile Val Phe Ser Gly Ala Asn Leu Leu Asp Asp Ala Arg
        515                 520                 525
Glu Asp Val Ala Asn Arg Thr Ser Ile Phe Asn Gln Pro Val His Leu
    530                 535                 540
Tyr Asn Gly Thr Leu Ser Ile Glu Asn Gly Ala His Leu Ile Val Gln
545                 550                 555                 560
Ser Phe Lys Gln Thr Gly Gly Arg Ile Ser Leu Ser Pro Gly Ser Ser
                565                 570                 575
Leu Ala Leu Tyr Thr Met Asn Ser Phe Phe His Gly Asn Ile Ser Ser
            580                 585                 590
Lys Glu Pro Leu Glu Ile Asn Gly Leu Ser Phe Gly Val Asp Ile Ser
        595                 600                 605
Pro Ser Asn Leu Gln Ala Glu Ile Arg Ala Gly Asn Ala Pro Leu Arg
    610                 615                 620
Leu Ser Gly Ser Pro Ser Ile His Asp Pro Glu Gly Leu Phe Tyr Glu
625                 630                 635                 640
Asn Arg Asp Thr Ala Ala Ser Pro Tyr Gln Met Glu Ile Leu Leu Thr
                645                 650                 655
Ser Asp Lys Thr Val Asp Ile Ser Lys Phe Thr Thr Asp Ser Leu Val
            660                 665                 670
Thr Asn Lys Gln Ser Gly Phe Gln Gly Ala Trp His Phe Ser Trp Gln
        675                 680                 685
Pro Asn Thr Ile Asn Asn Thr Lys Gln Lys Ile Leu Arg Ala Ser Trp
    690                 695                 700
Leu Pro Thr Gly Glu Tyr Val Leu Glu Ser Asn Arg Val Gly Arg Ala
705                 710                 715                 720
Val Pro Asn Ser Leu Trp Ser Thr Phe Leu Leu Leu Gln Thr Ala Ser
                725                 730                 735
His Asn Leu Gly Asp His Leu Cys Asn Asn Arg Ser Leu Ile Pro Thr
            740                 745                 750
Ser Tyr Phe Gly Val Leu Ile Gly Gly Thr Gly Ala Glu Met Ser Thr
        755                 760                 765
His Ser Ser Glu Glu Glu Ser Phe Ile Ser Arg Leu Gly Ala Thr Gly
    770                 775                 780
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Thr Ser Ile Ile Arg Leu Thr Pro Ser Leu Thr Leu Ser Gly Gly Gly
785 790 795 800
Ser His Met Phe Gly Asp Ser Phe Val Ala Asp Leu Pro Glu His Ile
805 810 815
Thr Ser Glu Gly Ile Val Gln Asn Val Gly Leu Thr His Val Trp Gly
820 825 830
Pro Leu Thr Val Asn Xaa Thr Leu Cys Ala Ala Leu Asp His Asn Ala
835 840 845
Met Val Arg Ile Cys Ser Lys Lys Asp His Thr Tyr Gly Lys Trp Asp
850 855 860
Thr Phe Gly Met Arg Gly Thr Leu Gly Ala Ser Tyr Thr Phe Leu Glu
865 870 875 880
Tyr Asp Gln Thr Met Arg Val Phe Ser Phe Ala Asn Ile Glu Ala Thr
885 890 895
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Phe Ser Lys Thr Lys Leu Leu Asn Ile Ala Ile Pro
915 920

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<213>Chlamydia trachomatis
<400>4
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Leu Thr Arg Lys Lys Gly Tyr Ser Val Val Pro Lys Ile Phe Trp Tyr
35 40 45
Leu Ser Gly Thr Gly Ala Val Phe Met Ile Cys His Gly Phe Ile Gln
50 55 60
Ser Gln Tyr Pro Ile Ala Leu Leu His Ser Phe Asn Leu Ile Ile Tyr
65 70 75 80
Phe Arg Asn Leu Asn Ile Ala Ser Leu Asn Pro Leu Pro Val Ser Lys
85 90 95
Ile Ala Ser Leu Leu Val Ser Val Ala Thr Ala Ile Thr Val Ser Phe
100 105 110
Ala Ile Gly Thr Arg Tyr Leu His His Met Thr Trp Met Ala Ser Pro
115 120 125
Asn Ile Leu His Leu Asn Leu Pro Glu Ala Ser Leu Ser Trp Gln Leu
130 135 140
Ile Gly Cys Ile Gly Leu Thr Ile Phe Ser Leu Arg Phe Phe Ile Gln
145 150 155 160
Trp Phe Tyr Leu Glu Tyr Lys Asn Gln Ser Ala Leu Pro Ala Pro Phe
165 170 175
Trp Lys Ala Ser Leu Leu Gly Gly Ser Ile Cys Leu Leu Tyr Phe Leu
180 185 190
Arg Thr Gly Asp Leu Val Asn Val Leu Cys Tyr Gly Cys Gly Leu Phe
195 200 205
Pro Ser Leu Ala Asn Leu Arg Ile Ala Ser Arg Glu Ala Phe Arg Lys
210 215 220
Pro Phe Ser Asn Ser Cys Phe Ile Ser Ala Gly Glu His Ser Gly Asp
225 230 235 240
Thr Leu Gly Gly Asn Leu Leu Lys Glu Met His Ala Lys Tyr Pro Asp
245 250 255
Ile His Cys Phe Gly Val Gly Gly Pro Gln Met Arg Ala Gln Asn Phe
260 265 270
His Ala Leu Phe Thr Met Glu Lys Phe Gln Val Ser Gly Phe Trp Glu
275 280 285
Val Leu Leu Ala Leu Pro Lys Leu Trp Tyr Arg Tyr Gln Leu Leu Tyr
290 295 300

09054L 60P1520

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Arg Asn Ile Leu Lys Thr Asn Pro Arg Thr Val Ile Cys Ile Asp Phe
305                 310                 315                 320
Pro Asp Phe His Phe Leu Leu Ile Lys Lys Leu Arg Ser Arg Gly Tyr
                325                 330                 335
Lys Gly Lys Ile Val His Tyr Val Cys Pro Ser Ile Trp Ala Trp Arg
            340                 345                 350
Pro Ser Arg Lys Thr Val Leu Glu Lys Tyr Leu Asp Leu Leu Leu Leu
        355                 360                 365
Ile Leu Pro Phe Glu Gln Asn Leu Phe Lys Asp Ser Ala Leu Arg Thr
    370                 375                 380
Val Tyr Leu Gly His Pro Leu Ser Glu Thr Ile Lys Ser Phe Ser Pro
385                 390                 395                 400
Asn Leu Asn Trp Lys Asp Gln Leu His Leu Pro Thr Asp Lys Pro Phe
                405                 410                 415
Ile Ala Ala Phe Pro Gly Ser Arg Arg Ser Asp Ile Leu Arg Asn Leu
            420                 425                 430
Thr Ile Gln Val Gln Ala Phe Gln Ala Ser Ser Leu Ala Ser Thr His
        435                 440                 445
His Leu Leu Val Ser Ser Ala Asn Pro Glu Tyr Asp His Leu Ile Leu
    450                 455                 460
Glu Val Leu Gln Gln Asn Arg Cys Leu His Ser His Ile Val Pro Ser
465                 470                 475                 480
Gln Phe Arg Tyr Glu Leu Met Arg Glu Cys Asp Phe Ala Leu Ala Lys
                485                 490                 495
Cys Gly Thr Ile Val Leu Glu Thr Ala Leu Asn Leu Thr Pro Thr Ile
            500                 505                 510
Val Thr Cys Gln Leu Arg Pro Leu Asp Thr Phe Leu Ala Lys Tyr Ile
        515                 520                 525
Phe Asn Ile Ile Leu Pro Ala Tyr Ser Leu Pro Asn Ile Ile Leu Gly
    530                 535                 540
Arg Thr Ile Phe Pro Glu Phe Ile Gly Gly Lys Lys Asp Phe Gln Tyr
545                 550                 555                 560
Glu Asp Val Ala Ala Ala Leu Asn Ile Leu Lys Thr Ser Gln Ala Gln
                565                 570                 575
Glu Lys Gln Lys Asp Ser Cys Arg Asp Val Tyr Gln Ala Ile Asn Glu
            580                 585                 590
Ser Ala Ser Ser Met Lys Glu Cys Leu Ser Leu Ile Phe Glu Thr Ala
        595                 600                 605
Ser
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<210>5
<211>425
<212>PRT
<213>Chlamydia trachomatis
<400>5

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Leu Ser Lys Asn Ser His Ser Asn Leu Thr Pro Thr Ile Phe Tyr Pro
             20                  25                  30
Ser Asp His Asn Ile Asp Leu Gln Ser Phe Ser Thr His Ala Leu Ser
         35                  40                  45
Val Val Arg Thr Leu Lys Lys Ala Gly Tyr Glu Ala Tyr Ile Val Gly
     50                  55                  60
Gly Cys Ile Arg Asp Leu Leu Leu Lys Thr Glu Pro Lys Asp Phe Asp
 65                  70                  75                  80
Ile Ser Thr Ser Ala Lys Pro Glu Glu Val Lys Thr Leu Phe Lys Asn
                 85                  90                  95
Cys Ile Leu Val Gly Lys Arg Phe Arg Leu Ala His Ile Arg Phe Pro
            100                 105                 110
Asn Gln Ile Ile Glu Val Ala Thr Phe Arg Ser Gly Ser Asn Glu Glu
        115                 120                 125
```

```
Asp Ser Leu Ile Thr Lys Asp Asn Leu Trp Gly Ser Ala Glu Glu Asp
    130                 135                 140
Val Leu Arg Arg Asp Phe Thr Ile Asn Gly Leu Phe Tyr Asp Pro Ser
145                 150                 155                 160
Ala Glu Ile Ile Ile Asp Tyr Thr Gly Gly Val Glu Asp Leu Lys Asn
                165                 170                 175
Arg Tyr Leu Arg Thr Ile Gly Asp Pro Phe Leu Arg Phe Lys Gln Asp
            180                 185                 190
Pro Val Arg Met Leu Arg Leu Leu Lys Ile Leu Ser Arg Tyr Ala Phe
        195                 200                 205
Thr Val Asp Pro Lys Thr Leu Glu Ala Leu Gln Glu Ser Arg His Glu
    210                 215                 220
Leu Val Lys Ser Ser Gln Pro Arg Val Phe Glu Glu Ile Ile Lys Val
225                 230                 235                 240
Leu Ser Ser Gly Glu Ser Thr Ile Phe Phe Gln Leu Ala Ser Glu His
                245                 250                 255
Arg Val Leu Glu Ile Leu Phe Pro Tyr Met Ala Lys Ala Phe Ser Leu
            260                 265                 270
Ser Lys Thr Leu Gln Asp Gln Thr Phe Ala Cys Leu Thr Ala Leu Asp
        275                 280                 285
Thr Lys Ile Gln Lys Arg Ser Phe Cys Ser Glu Arg His Phe Leu Leu
    290                 295                 300
Ala Ile Leu Leu Phe Pro Ile Val Asn Phe Asn Val Arg Tyr Lys Tyr
305                 310                 315                 320
Ser Gln Tyr Pro Thr Met Thr Ile Gln Ser Ile Phe Asp Tyr Ile Arg
                325                 330                 335
Asn Phe Leu Thr Glu Phe Phe Ala Asp Ser Phe Thr Ser Cys Ser Lys
            340                 345                 350
Lys Asn Phe Ile Leu Thr Thr Leu Leu Leu Gln Met Gln Tyr Arg Leu
        355                 360                 365
Thr Pro Leu Ser Ala Met Lys Lys Glu Lys Lys Ser Phe Phe Asn Arg
    370                 375                 380
Arg Leu Leu Arg His Ala Tyr Phe Arg Glu Ala Leu Tyr Leu Leu Glu
385                 390                 395                 400
Ile Arg Ser Lys Val Tyr Leu Lys Val Glu Ala Thr Tyr Gly Glu Trp
                405                 410                 415
Leu Lys His Tyr Glu Leu Ala Ser Glu
            420                 425
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<213>Chlamydia trachomatis
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Ser Tyr Ile Ala Phe Val Leu Ile Leu Leu Leu Gly Val Leu Phe Thr
            20                  25                  30
Cys Lys Ser Lys Phe Ala Gln Phe Thr Gln Leu Pro Ala Phe Phe Lys
        35                  40                  45
Leu Phe Tyr His Phe Ser Lys Glu Ala Ser Ser Lys Lys Glu Asn Gln
    50                  55                  60
Lys Lys Gly Val His Pro Leu Lys Val Phe Phe Ala Ser Ala Gly Gly
65                  70                  75                  80
Asn Ile Gly Ile Gly Asn Val Val Gly Ile Val Thr Ala Ala Ser Val
                85                  90                  95
Gly Gly Pro Gly Ala Leu Phe Trp Val Trp Ile Ala Gly Ile Leu Gly
            100                 105                 110
Ser Ile Val Lys Tyr Ser Glu Val Tyr Leu Gly Ile Lys Phe Arg Gln
        115                 120                 125
Ser Asp Ala Asn Asn Val Tyr His Gly Gly Pro Met Phe Phe Leu Asp
    130                 135                 140
```

```
Lys Ala Tyr Arg Thr Arg Ile Val Ser Val Ile Val Ala Val Leu Leu
145                 150                 155                 160
Cys Ile Tyr Gly Val Glu Ile Tyr Gln Phe Ser Ile Ile Ala Asn Thr
                165                 170                 175
Leu Ala Ser Cys Trp Asp Val Pro Lys Leu Met Ala Ile Ala Ser Leu
            180                 185                 190
Leu Phe Leu Val Met Tyr Ala Val Gln Gly Gly Leu Gln Arg Ile Gly
        195                 200                 205
Lys Ile Cys Ser Leu Val Leu Pro Phe Phe Met Leu Val Tyr Cys Gly
    210                 215                 220
Met Ala Phe Tyr Ile Leu Ile Gln Glu Ile His Thr Leu Pro Ala Leu
225                 230                 235                 240
Phe Ser Ser Ile Phe Arg Ser Ala Phe Thr Gly His Gly Ala Ile Gly
                245                 250                 255
Gly Phe Ala Gly Cys Thr Val Ala Ser Thr Ile Arg Gln Gly Leu Ser
            260                 265                 270
Arg Ala Ala Tyr Ser Gly Asp Ile Gly Ile Gly Phe Asp Ser Ile Ile
        275                 280                 285
Gln Ser Glu Thr Ser Ala Thr Asn Pro Gln Thr Gln Ala Gln Leu Ser
    290                 295                 300
Ile Val Gly Val Ile Val Asp Asn Leu Val Cys Thr Leu Ser Leu Leu
305                 310                 315                 320
Ile Val Leu Ala Ser Gly Val Trp His Arg Ala Gly Leu Glu Gly Ser
                325                 330                 335
Glu Ile Val Glu Gln Ala Leu Ser Ser Tyr Phe Pro Tyr Ile Arg Val
            340                 345                 350
Phe Leu Pro Ala Phe Leu Phe Ala Thr Gly Tyr Thr Thr Ile Ile Ser
        355                 360                 365
Tyr Phe Leu Val Gly Lys Lys Cys Ala Asn Phe Ile Cys Gly Asn Lys
    370                 375                 380
Gly Ser Lys Phe Tyr Thr Val Tyr Gly Ile Ile Ala Leu Pro Ala Phe
385                 390                 395                 400
Cys Phe Leu Pro Gln Asp Thr Ala Leu Leu Val Met Ser Val Ser Gly
                405                 410                 415
Ala Leu Leu Leu Cys Leu Asn Leu Leu Gly Val Phe Leu Met Arg Lys
            420                 425                 430
Glu Leu Ile Phe Pro Lys Lys Glu Ala Glu Thr Leu Glu Val Ser Glu
        435                 440                 445
Ser Thr Leu Ser Ser
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<213>Chlamydia trachomatis
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Ser Ile Asp Trp Val Ser Lys Leu Val Val Leu Leu Lys Ser Cys Gln
             20                  25                  30
Leu Ser Pro His Ser Ser Ala Phe Leu Tyr Ser Tyr Val Trp Gly His
         35                  40                  45
Phe Ser Phe Leu Ile Ile Pro Ser Phe Asn Glu Gly Ala Ala Phe Gly
     50                  55                  60
Leu Phe Ala Gln Tyr Lys Ile Pro Leu Leu Ile Phe Arg Val Cys Val
 65                  70                  75                  80
Ile Leu Gly Leu Ala Leu Phe Leu Arg Ile Lys Tyr Lys Ser Leu His
                 85                  90                  95
Arg Arg Thr Arg Ile Ala Leu Thr Leu Ile Leu Ala Gly Ala Leu Gly
            100                 105                 110
Asn Val Gly Asp Ile Leu Leu His Gly Lys Val Val Asp Phe Leu Phe
        115                 120                 125
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Leu Ser Tyr Tyr Ser Trp Arg Phe Pro Ser Phe Asn Leu Ala Asp Ala
    130                 135                 140
Phe Ile Ser Ile Gly Thr Leu Leu Leu Ile Gly His Leu Tyr Phe Thr
145                 150                 155                 160
Lys Glu Ser Lys Lys Cys Phe
                165
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<213>Chlamydia trachomatis
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Met Val Lys Asn Lys His Glu Lys Glu Asn Cys Met Pro Leu Thr Asp
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Glu Glu Ile Ala Asn Phe Lys Thr Arg Leu Leu Glu Met Lys Ala Lys
            20                  25                  30
Leu Ser His Thr Leu Glu Gly Asn Ala Gln Glu Val Lys Lys Pro Asn
        35                  40                  45
Glu Ala Thr Gly Tyr Ser Gln His Gln Ala Asp Gln Gly Thr Asp Thr
    50                  55                  60
Phe Asp Arg Thr Ile Ser Leu Glu Val Thr Thr Lys Glu Tyr Lys Leu
65                  70                  75                  80
Leu Arg Gln Ile Asp Arg Ala Leu Glu Lys Ile Glu Glu Ala Ser Tyr
                85                  90                  95
Gly Ile Cys Asp Val Ser Gly Glu Glu Ile Pro Leu Ala Arg Leu Met
            100                 105                 110
Ala Ile Pro Tyr Ala Thr Met Thr Val Lys Ser Gln Glu Lys Phe Glu
        115                 120                 125
Lys Gly Leu Leu Ser Gly Asn
    130                 135
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<213>Chlamydia trachomatis
<400>9
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  1               5                  10                  15
Arg Asn Ala Pro Glu Ser Asn Ala Ile Lys Arg Arg Arg Glu Cys Leu
            20                  25                  30
Arg Cys Ser Gln Arg Phe Thr Thr Phe Glu Thr Val Glu Leu Thr Val
        35                  40                  45
Gln Val Leu Lys Arg Asp Gly Arg Tyr Glu Asn Phe Gln Glu Ser Lys
    50                  55                  60
Leu Val Asn Gly Leu Lys Ala Ala Ser Ser His Thr Arg Ile Gly Gln
65                  70                  75                  80
Glu Gln Val Gln Ala Ile Ala Ser Asn Ile Lys Gln Asp Leu Leu Gly
                85                  90                  95
Lys Gln Asn Arg Glu Ile Ser Thr Lys Glu Ile Gly Glu Leu Val Met
            100                 105                 110
Lys Tyr Leu Lys Lys Ala Asp Met Ile Ala Tyr Ile Arg Phe Ala Cys
        115                 120                 125
Val Tyr Arg Arg Phe Lys Asp Val Gly Glu Leu Met Glu Val Leu Leu
    130                 135                 140
Ser Ala Thr Pro Asp Gly Glu Lys Gln Thr
145                 150
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<213>Chlamydia trachomatis
<400>10
Leu Ser Met Phe Ser Gly Ile Ile Gln Glu Val Ala Arg Val Asp Leu
  1               5                  10                  15
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Ile His His Leu Gly Asp Ser Met Glu Ile Gly Val Phe Ala Arg Lys
                20                  25                  30
Leu Ile Asp Val Val Pro Gly Ser Ser Phe Ser Val Asp Gly Ile Cys
            35                  40                  45
Leu Thr Leu Val Lys Arg Gln Tyr Glu Leu Leu Phe Phe Asp Val Thr
        50                  55                  60
Glu Glu Thr Met Ala Trp Thr Thr Ile Lys Asp Tyr Thr Val Gly Thr
65                  70                  75                  80
Met Val Asn Leu Glu Arg Ser Val Arg Leu Gly Asp Glu Ile Gly Gly
                85                  90                  95
His Phe Val Ser Gly His Val Cys Gly Ile Gly Thr Ile Ile Ala Ile
            100                 105                 110
Glu Lys Ser Tyr Met Phe Phe Lys Ala Pro Ala Asn Leu Val Pro Tyr
        115                 120                 125
Ile Leu Glu Lys Gly Phe Ile Ala Ile Asp Gly Ile Ser Leu Thr Ile
    130                 135                 140
Ala Arg Val Lys Gly Asp Ile Phe Ser Val Ser Leu Ile Pro Glu Thr
145                 150                 155                 160
Arg Ala Arg Thr Ser Leu Gly Tyr Lys Gln Val Gly Ala His Val Asn
                165                 170                 175
Met Glu Pro Asp Met Met Thr Lys Met Gln Val Asp Thr Ile Met Arg
            180                 185                 190
Phe His Ala Glu Lys Glu Ile Ser Lys
        195                 200
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<211>296
<212>PRT
<213>Chlamydia trachomatis
<400>11
Tyr Asp Asp Lys Asn Ala Gly Gly His Asn Tyr Ala Phe Pro Cys Arg
  1                 5                  10                  15
Lys Arg Asp Gln Gln Met Met Asp Tyr Glu Leu Leu Asp Ser Gly Asp
            20                  25                  30
Gly Lys Lys Leu Glu Arg Phe Lys Asp Val Cys Leu Ile Arg Ser Ser
        35                  40                  45
Ala Thr Ala Ile Trp Pro Lys Ser Ser Pro Ser Leu Trp Gly Gln Tyr
    50                  55                  60
Ser Ala Glu Phe Val Arg Met Gly Glu Gln Gly Gln Trp Arg Tyr Arg
65                  70                  75                  80
Asn Arg Asn Leu Lys Glu Trp Trp Ile Thr Ile Asp Ser Val Ser Cys
                85                  90                  95
Leu Leu Lys Leu Thr Pro Phe Gly His Val Gly Ile Phe Pro Glu His
            100                 105                 110
Ala Gly Phe Trp Lys Asp Leu Gln Pro Ser Val Ala Lys Pro Ser Cys
        115                 120                 125
Arg Val Leu Asn Leu Phe Ala Tyr Thr Gly Ala Ser Ser Ile Phe Cys
    130                 135                 140
Ala Gln Gln Gly Ala Thr Val Tyr His Val Asp Ala Ser Lys Ala Ala
145                 150                 155                 160
Val Lys Trp Ala Gln Lys Asn Val Glu Gly Asn Ala Phe Gln Asp Lys
                165                 170                 175
Arg Val Phe Trp Ile Ile Glu Asp Val Phe Ser Phe Leu Lys Lys Glu
            180                 185                 190
Ile Arg Arg Gly Lys Thr Tyr Asp Val Ile Leu Leu Asp Pro Pro Thr
        195                 200                 205
Tyr Gly Arg Gly Pro Asp Gly Glu Thr Phe Lys Ile Asp Arg Asp Phe
    210                 215                 220
Phe Pro Leu Leu Glu Leu Cys Ser Gln Leu Leu Ser Ser Ser Phe Ser
225                 230                 235                 240
His Met Leu Ile Thr Ser His Thr Pro Gly His Thr Pro Glu Phe Leu
                245                 250                 255
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His Cys Leu Ala Arg Arg Ala Leu Pro Met Leu Pro Leu Gln Gly Trp
            260                 265                 270
Arg Leu Gly Glu Asn Phe Cys Gly Glu Gly Asn Gln Arg Leu Pro Ser
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Gly Val Phe Ala Gln Trp Ser Leu
    290                 295
<210>12
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<213>Chlamydia trachomatis
<400>12
Met Glu Phe Ile Gly Lys Asn Asn Ala Arg Val Lys Ser Ala Leu Ala
  1               5                  10                  15
Leu Lys Arg Gln Arg Ala Arg Asn Gly Thr Tyr Phe Leu Leu Glu Gly
             20                  25                  30
Phe Arg Glu Ile His Arg Ala Leu Ile Ser Gly Tyr Arg Cys Ser His
         35                  40                  45
Val Phe Cys Gly Glu Leu Ile Ala Asp Lys Glu Ile Ala Leu Asp Arg
     50                  55                  60
Glu Leu Thr Ser Leu Gly Ile Glu Lys Leu Tyr Cys Ser Lys Asp Ile
 65                  70                  75                  80
Leu Glu Lys Leu Ser Phe Lys Glu Asn Pro Glu Asn Phe Ile Ala Val
                85                  90                  95
Phe Glu Lys Lys Glu Leu Ser Cys Gln Glu Phe Leu Gly Leu Gln Arg
            100                 105                 110
Lys Asn Gln Ala Pro Phe Tyr Leu Ile Val Glu Gln Ala Glu Lys Pro
        115                 120                 125
Gly Asn Ile Gly Ala Leu Leu Arg Ile Ala Asp Gly Ala Gly Val Asp
    130                 135                 140
Gly Val Ile Leu Cys Asp Pro Val Val Asp Leu Tyr Asn Pro Asn Val
145                 150                 155                 160
Ile Arg Ser Ser Leu Gly Thr Val Phe Thr Met Pro Val Trp Gln Ala
                165                 170                 175
Ser Leu Lys Glu Val Leu Asp Leu Val His Gln Gln Glu Trp Gln Val
            180                 185                 190
Phe Thr Thr Thr Pro Ser Ala Gln Thr Phe Tyr Phe Asp Gln Asp Phe
        195                 200                 205
Cys Gln Pro Thr Val Val Val Phe Gly Ser Glu Lys Asp Gly Val Ala
    210                 215                 220
<210>13
<211>419
<212>PRT
<213>Chlamydia trachomatis
<400>13
Leu Ile Phe Asn Val Leu Tyr Ala Ile Leu Gln Asp Ala Leu Val Trp
  1               5                  10                  15
Lys Ala Thr Trp Val Lys Arg Thr Lys Ser Leu Ser Gln Pro Phe Arg
             20                  25                  30
Val Val Ile Val Phe Ala Gly Cys Ser Phe Arg Lys Asn Leu Ser Arg
         35                  40                  45
Ala Pro Met Arg Phe Ser Phe Phe Ser Gly Ile Arg Asp Leu Phe Arg
     50                  55                  60
His Leu Ile Ile Ser Ala Thr Ser Gly Ala Leu Ser Asp Arg Leu Gly
 65                  70                  75                  80
Trp Leu Trp Ala Val Ile Ala Arg Val Phe Ser Gly Ser Val Trp Leu
                85                  90                  95
Arg His Lys Ile Ala Lys Ser Pro His Gln Val Gln Ala Thr Val Val
            100                 105                 110
Ser Val Gly Asn Ile Val Val Gly Gly Thr Gly Lys Thr Pro Leu Val
        115                 120                 125
Leu Trp Leu Ala Gln Ala Leu His Glu Arg Gly Leu Ser Cys Ala Val
```

```
    130                 135                 140
Leu Ser Arg Gly Tyr Lys Gly Lys Tyr Ser Lys Lys Lys Ala Phe Thr
145                 150                 155                 160
Ile Val Asn Pro Ala Leu His Thr Ala Ser Cys Val Gly Asp Glu Pro
                165                 170                 175
Leu Leu Leu Ala Lys His Leu Pro Ser Gly Ala Val Arg Ile Gln Lys
            180                 185                 190
Asp Arg Lys Thr Leu Ala Glu Lys Ser Ala Gly Asp Phe Asp Val Leu
        195                 200                 205
Ser Leu Asp Asp Gly Phe Gln Tyr Asn Arg Leu His Lys Asp Val Glu
    210                 215                 220
Ile Val Leu Val Asn Gly Ser Asp Pro Phe Gly Gly Gly Ser Phe Phe
225                 230                 235                 240
Pro Lys Gly Arg Leu Arg Asp Phe Pro Glu Arg Leu Ala Lys Ala Asp
                245                 250                 255
Tyr Val Met Ile Asn Gly Arg Cys Ser Pro Ser Asp Gln Arg Glu Leu
            260                 265                 270
Asp Arg Leu His Pro Glu Xaa Lys Ile Val Ile Glu Pro Gln Ile Ser
        275                 280                 285
Glu Ile Val Trp Met Asn Gln Ser Val Asn Met Pro Arg Asp His Trp
    290                 295                 300
Glu Gly Leu Gly Val Gly Val Phe Cys Gly Leu Gly Phe Pro Lys Gly
305                 310                 315                 320
Phe Leu Ala Met Leu Arg Asp Ala Gly Ile His Val Leu Gly Thr Tyr
                325                 330                 335
Leu Leu Pro Asp His Val Gly Ile Thr Lys Gln Glu Leu Glu Leu Phe
            340                 345                 350
Cys Lys Lys Ile Ile Leu Arg Gln Gly Val Gly Ile Leu Cys Thr Glu
        355                 360                 365
Lys Asp Ser Val Lys Ile Gly Ala Leu Ala Glu Glu Ile Ser Leu Pro
    370                 375                 380
Val Gly Glu Xaa Arg Met Arg Phe Ser Cys Val Cys Asn Glu Arg Arg
385                 390                 395                 400
Met Xaa Ala Met Leu Asp Ala Ile Glu Ser Ile Gln Lys Asn Lys Arg
                405                 410                 415
Val Thr Thr
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<210>14
<211>294
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<213>Chlamydia trachomatis
<400>14

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Glu Val Leu Gly Leu Tyr Leu Ala Thr Thr Ser Val Ala Ile Gly Ile
  1               5                  10                  15
Gly Leu Ala Phe Ala Leu Phe Phe Ser Pro Gly Lys Gly Cys Asp Leu
             20                  25                  30
Gln Gly Phe Asn Ala Val Asp Leu Ala Ser Ser Gly Ser Ser Gly Gly
         35                  40                  45
Met Asn Phe Leu Ala Thr Phe Ala Gln Val Phe Pro Ser Asn Pro Leu
     50                  55                  60
Arg Ser Phe Val Glu Gly Asn Ile Leu Gln Ile Ile Ile Phe Ala Leu
 65                  70                  75                  80
Phe Thr Gly Ile Ala Met Arg Leu Ala Gly Glu Ala Ala Arg Pro Val
                 85                  90                  95
Glu Arg Phe Val His Gly Cys Asn Glu Ile Met Leu Arg Met Val Asn
            100                 105                 110
Met Ile Met Ser Phe Ala Pro Tyr Gly Val Ala Ala Ser Met Ala Trp
        115                 120                 125
Ile Ser Gly Asn His Gly Leu Thr Val Leu Leu Gln Leu Gly Lys Phe
    130                 135                 140
Leu Val Val Tyr Tyr Leu Ala Cys Ile Cys His Ala Ile Leu Ile Phe
```

```
145                 150                 155                 160
Gly Gly Leu Val Arg Leu Gly Cys Arg Ser Ser Phe Ser Lys Phe Leu
                165                 170                 175
Ser Ser Met Met Asp Ala Ile Ser Cys Ala Val Ser Thr Ala Ser Ser
            180                 185                 190
Ser Ala Thr Leu Pro Val Thr Met Arg Cys Val Ser Lys Asn Leu Gly
        195                 200                 205
Val Ser Ser Glu Val Ser Gly Phe Val Leu Pro Leu Gly Ala Thr Val
    210                 215                 220
Asn Met Asn Gly Thr Ala Ile Xaa Gln Gly Met Ala Ala Val Phe Ile
225                 230                 235                 240
Ala Xaa Xaa Tyr Asn Cys Pro Leu Ser Leu Thr Ser Leu Leu Leu Leu
                245                 250                 255
Val Val Thr Ala Thr Phe Ser Ala Val Gly Ser Ala Gly Val Pro Gly
            260                 265                 270
Gly Gly Met Ile Thr Leu Gly Ser Val Leu Thr Ser Val Gly Leu Pro
        275                 280                 285
Ile Gln Gly Thr Gln Ser
    290
<210>15
<211>71
<212>PRT
<213>Chlamydia trachomatis
<400>15
Met Phe Glu Phe Arg Phe Pro Lys Ile Gly Glu Thr Ala Ser Gly Gly
  1               5                  10                  15
Ile Val Val Arg Trp Leu Lys Gln Val Gly Asp Pro Val Gln Lys Asp
             20                  25                  30
Glu Pro Leu Ile Glu Val Ser Thr Asp Lys Ile Ala Thr Glu Leu Ala
         35                  40                  45
Pro Ser Gln Ala Gly Ile Leu Glu Glu Cys Leu Val Gln Glu Gly Glu
     50                  55                  60
Glu Phe Ser Leu Glu Xaa Phe
 65                  70
<210>16
<211>346
<212>PRT
<213>Chlamydia trachomatis
<400>16
Asp Ser Tyr Arg Val Ser Ser Phe Ser Ser Trp His Phe Gly Gly Val
  1               5                  10                  15
Pro Gly Ser Gly Arg Gly Arg Val Phe Pro Gly Xaa Ile Leu Ala Arg
             20                  25                  30
Leu Arg Glu Thr Ala Ala Ala Asn Thr Pro Val Lys Ser Pro Val Glu
         35                  40                  45
Asn Pro Val Arg Glu Glu Asn His Ser Val Asp Arg Glu Gln Lys Trp
     50                  55                  60
Leu Ser Pro Ala Val Leu Gly Phe Ala Gln Arg Glu Gly Leu Asp Leu
 65                  70                  75                  80
Gln Glu Leu Gln Lys Ile Ser Gly Thr Gly Glu Gly Gly Arg Ile Thr
                85                  90                  95
Arg Lys Asp Val Glu Arg Tyr Leu Ser Asp Lys Arg Glu Pro Arg Asp
            100                 105                 110
Pro Ile Cys Ser Lys Glu Glu Asn Arg Ile Pro Leu Ser Pro Leu Arg
        115                 120                 125
Arg Ala Ile Ala Ser Ser Leu Arg Gln Ser Ser Glu Glu Val Pro His
    130                 135                 140
Ala Ser Leu Val Val Asp Val Asp Val Thr Asp Leu Met Asn Leu Ile
145                 150                 155                 160
Ser Ala Glu Arg Glu Arg Phe Thr Ala Ala His Gly Val Lys Leu Thr
                165                 170                 175
```

```
Ile Thr Ser Phe Ile Ile Gln Cys Leu Ala Lys Ser Leu Glu Gln Phe
            180                 185                 190
Pro Leu Leu Asn Gly Ser Leu Asp Gly Asp Thr Ile Val Leu Lys Lys
        195                 200                 205
Ala Ile Asn Val Gly Val Ala Val Asn Leu Asn Lys Glu Gly Val Val
    210                 215                 220
Val Pro Val Ile His Asn Cys Gln Asp Arg Gly Leu Val Ser Ile Ala
225                 230                 235                 240
Lys Val Leu Ala Asp Leu Ser Ser Arg Ala Arg Ser Asn Lys Leu Asp
                245                 250                 255
Ser Ser Glu Thr Lys Gly Gly Ser Val Thr Val Thr Asn Phe Gly Met
            260                 265                 270
Thr Gly Ala Leu Ile Gly Met Pro Ile Ile Arg Tyr Pro Glu Val Ala
        275                 280                 285
Ile Leu Gly Ile Gly Thr Ile Gln Lys Arg Val Val Val Arg Asp Asp
    290                 295                 300
Asp Ser Leu Ala Ile Arg Lys Met Met Tyr Val Thr Leu Thr Phe Asp
305                 310                 315                 320
His Arg Val Leu Asp Gly Ile Tyr Gly Gly Glu Phe Leu Thr Ala Leu
                325                 330                 335
Lys Asn Arg Leu Glu Ser Val Thr Met Ser
            340                 345
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<210>17
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<212>PRT
<213>Chlamydia trachomatis
<400>17

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Val Lys Val Met Tyr Val Pro Gly Ile Ala Glu Asn Leu Cys Leu Asp
  1               5                  10                  15
Ile Phe His Lys Gln Lys Gln Val Ile Ser Gln Tyr Phe Ala Ser Phe
            20                  25                  30
His Tyr Asp Cys Val His Gln Leu Thr Glu Lys Leu Leu Cys His Gln
        35                  40                  45
Gly Ser Val Phe Phe Ser Gly Ile Gly Lys Ser Gly Cys Ile Ala Arg
    50                  55                  60
Lys Leu Val Ala Thr Met Gln Ser Phe Gly Glu Lys Ala Phe Phe Leu
65                  70                  75                  80
Ser Gly Asp Leu Leu His Gly Asp Leu Gly Val Val Ser Pro Gly Asp
                85                  90                  95
Ile Val Cys Leu Phe Ser Asn Ser Gly Glu Thr Arg Glu Ile Leu Glu
            100                 105                 110
Trp Ile Pro His Leu Lys Asn Arg Pro Ile Phe Leu Val Gly Ile Thr
        115                 120                 125
Ala Ala Pro Cys Ser Ser Leu Ala Ala Phe Ser Asp Phe Val Val Val
    130                 135                 140
Leu Pro Lys Leu Glu Glu Leu Asp Pro Phe Asp Leu Asn Ala Tyr Asn
145                 150                 155                 160
Leu Asn His Met Pro Ile Thr Phe Phe
                165
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<210>18
<211>110
<212>PRT
<213>Chlamydia trachomatis
<400>18

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Ala Leu Arg Ser Lys Gly Ser Asn Ser Ser Asn Phe Gly Ser Thr Thr
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Thr Lys Ser Glu Lys Ala Ala Lys Leu Glu His Gly Ala Ala Val Ile
            20                  25                  30
Pro Thr Arg Lys Met Gly Leu Phe Phe Lys Cys Gly Ile His Ser Lys
        35                  40                  45
Ile Ser Arg Val Ser Pro Leu Phe Glu Asn Arg Gln Thr Ile Ser Pro
```

```
     50                  55                  60
Gly Glu Thr Thr Pro Lys Ser Pro Trp Arg Arg Ser Pro Glu Arg Lys
 65                  70                  75                  80
Lys Ala Phe Ser Pro Lys Asp Cys Ile Val Ala Thr Asn Leu Arg Ala
                 85                  90                  95
Met Gln Pro Leu Phe Pro Ile Pro Glu Lys Asn Thr Asp Pro
            100                 105                 110
<210>19
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<212>PRT
<213>Chlamydia trachomatis
<400>19
Gly Lys Ile Ser Met His Asp Ala Leu Gln Ser Ile Leu Ala Ile Gln
  1               5                  10                  15
Glu Leu Asp Ile Lys Met Ile Arg Leu Met Arg Val Lys Lys Glu His
            20                  25                  30
Gln Asn Glu Leu Ala Lys Ile Gln Ala Leu Lys Thr Asp Ile Arg Arg
        35                  40                  45
Lys Val Glu Glu Lys Glu Gln Glu Met Glu Lys Leu Lys Asp Gln Ile
     50                  55                  60
Lys Gly Gly Glu Lys Arg Ile Gln Glu Ile Ser Asp Gln Ile Asn Lys
 65                  70                  75                  80
Leu Glu Asn Gln Gln Ala Ala Val Lys Lys Met Asp Glu Phe Asn Ala
                 85                  90                  95
Leu Thr Gln Glu Met Thr Ala Ala Asn Lys Glu Arg Arg Thr Leu Glu
            100                 105                 110
His Gln Leu Ser Asp Leu Met Asp Lys Gln Ala Gly Ser Glu Asp Leu
        115                 120                 125
Leu Ile Ser Leu Lys Glu Ser Leu Ser Ser Thr Glu Asn Ser Ser Ser
    130                 135                 140
Ala Ile Glu Glu Glu Ile Arg Glu Asn Ile Arg Lys Ile Asn Glu Glu
145                 150                 155                 160
Gly Arg Ser Leu Leu Ser Gln Arg Thr Gln Leu Lys Glu Thr Thr Asp
                165                 170                 175
Pro Glu Leu Phe Ser Val Tyr Glu Arg Leu Leu Asn Asn Lys Lys Asp
            180                 185                 190
Arg Val Val Val Pro Ile Glu Asn Arg Val Cys Ser Gly Cys His Ile
        195                 200                 205
Ala Leu Thr Pro Gln His Glu Asn Leu Val Arg Lys Gln Asp His Leu
    210                 215                 220
Val Phe Cys Glu His Cys Ser Arg Ile Leu Tyr Trp Gln Glu Leu Gln
225                 230                 235                 240
Ala Pro Ser Ala Glu Gly Ala Thr Thr Lys Arg Arg Arg Arg Arg Thr
                245                 250                 255
Ala Val

<210>20
<211>695
<212>PRT
<213>Chlamydia trachomatis
<400>20
Leu Val Gly Lys Ala Lys Asn Lys Lys Lys Phe Leu Lys Asn Arg Lys
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Gln Val Leu Val Pro Gly Thr Leu Phe Val His Ser Arg Lys Gly Phe
            20                  25                  30
Gly Phe Val Ser Pro Asp Gln Pro Glu Leu Tyr Pro Phe Asp Ile Phe
        35                  40                  45
Ile Ser Ala Ser Asp Leu Lys Gly Ala Leu Asp Gly Asp His Val Leu
     50                  55                  60
Val Ala Leu Pro Phe Ser Leu Arg Gly Gly Glu Lys Arg Lys Gly Val
 65                  70                  75                  80
```

```
Ile His Lys Val Leu Ser Arg Gly Lys Thr Val Leu Val Gly Thr Ile
                 85                  90                  95
Val Ser Leu Ile Asn Pro Thr Leu Ala Met Val Cys Val Asn Thr Ile
            100                 105                 110
Gly Pro Glu His Pro Leu Lys Ala Glu Leu Leu Pro Lys Arg Thr Tyr
        115                 120                 125
Lys Leu Gly Asp Arg Leu Leu Leu Lys Thr Pro Val Trp Lys Glu Asn
    130                 135                 140
Tyr Pro Ser Lys Glu Pro Pro Pro Leu Ala Met Leu Glu Phe Ile Gly
145                 150                 155                 160
Asn Ile Ser Asn Ala Lys Thr Asp Phe Pro Val Ile Lys Ala Glu Phe
                165                 170                 175
Ser Ile Thr Glu Glu Phe Pro Asp Ala Val Val Gln Glu Ala Ser Gln
            180                 185                 190
Phe Leu Gln Lys His Val Thr Gln Ala Leu His Ser Arg Lys Asp Leu
        195                 200                 205
Arg Asp Leu Leu Cys Phe Thr Ile Asp Ser Ser Ser Ala Lys Asp Phe
    210                 215                 220
Asp Asp Ala Val Ser Leu Thr Tyr Asp His Glu Gly Asn Tyr Ile Leu
225                 230                 235                 240
Gly Val His Ile Ala Asp Val Ser His Tyr Val Thr Pro Asn Ser Ala
                245                 250                 255
Leu Asp Arg Glu Ala Ala Lys Arg Cys Asn Ser Ile Tyr Phe Pro Gly
            260                 265                 270
Lys Val Ile Pro Met Leu Pro Ser Ala Leu Ser Asp Asn Leu Cys Ser
        275                 280                 285
Leu Lys Pro Asn Val Asp Arg Leu Ala Val Ser Val Phe Met Thr Phe
    290                 295                 300
Ser Lys Glu Gly Phe Leu Ser Asp Tyr Arg Ile Leu Arg Ser Val Ile
305                 310                 315                 320
Arg Ser Lys Tyr Arg Met Thr Tyr Asp Glu Val Asp Glu Ile Ile Glu
                325                 330                 335
Lys Lys Gln Thr His Pro Ile Ser Lys Thr Ile Leu Lys Met Ala Glu
            340                 345                 350
Leu Ser Arg Ile Phe Ser Asp Ile Arg Glu Gln Arg Gly Cys Thr Arg
        355                 360                 365
Leu Val Leu Pro Ser Phe Thr Met Ser Leu Asp Asn Leu Gln Glu Pro
    370                 375                 380
Val Ala Leu Ile Glu Asn Lys Gln Thr Ala Ala His Lys Leu Ile Glu
385                 390                 395                 400
Glu Phe Met Leu Lys Ala Asn Glu Val Ile Ala Tyr His Ile Ser His
                405                 410                 415
Gln Gly Ile Thr Met Pro Phe Arg Thr His Glu Pro Pro Asn Glu Glu
            420                 425                 430
Ser Leu Leu Val Phe Gln Glu Thr Ala Lys Ala Met Gly Phe Thr Ile
        435                 440                 445
Thr Gln Thr Pro Ala Gln Glu Pro Asp Tyr Gln Tyr Leu Leu Gln Glu
    450                 455                 460
Thr Thr Ala Gly His Pro Leu Glu Pro Ile Leu His Ser Gln Phe Val
465                 470                 475                 480
Arg Ser Met Lys Thr Ala Ser Tyr Ser Thr Glu Asn Lys Gly His Tyr
                485                 490                 495
Gly Leu Cys Leu Asp Tyr Tyr Thr His Phe Thr Ser Pro Ile Arg Arg
            500                 505                 510
Tyr Val Asp Leu Ile Val His Arg Leu Leu Phe His Ser Leu Ser Val
        515                 520                 525
Glu Glu Glu His Leu Glu Gln Ile Val Arg Ala Cys Ser Ser Gln Glu
    530                 535                 540
Arg Ile Ala Ala Lys Ala Glu Gly Ala Phe Val Asn Ile Lys Lys Ala
545                 550                 555                 560
Arg Phe Leu Lys Lys Phe Ile Glu Glu Gln Pro Ala Thr Leu Tyr Lys
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                565                 570                 575
Ala Phe Ile Ile Thr Ala Ser Pro Glu Gly Ile Ser Phe Val Leu Pro
            580                 585                 590
Glu Phe Cys His Glu Gly Phe Ile Pro Ala Ala Lys Leu Pro Gln Ala
        595                 600                 605
Tyr Val Leu Gln Thr Lys Ile Gly Leu Glu Glu Leu Pro Glu His Leu
    610                 615                 620
Arg Pro Gly Ala Val Ile Ser Val Gln Leu Ala Ser Val Thr Leu Leu
625                 630                 635                 640
Thr Gln Ser Ile Glu Trp Thr Leu Val Glu Ala Thr Thr Lys Ala Lys
                645                 650                 655
Ala Lys Arg Thr Ser Lys Lys Lys Lys Thr Glu Ser Val Thr Thr Lys
            660                 665                 670
Glu Lys Lys Lys Ser Ser Ala Lys Lys Lys Lys Gly Ala Thr Lys Thr
        675                 680                 685
Lys Lys Gly Ser Gly Lys Asn
    690                 695
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<213>Chlamydia trachomatis
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Glu Glu Glu Leu Ser Ile Phe Leu Ser Trp Lys Ser Val Thr Glu Val
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Phe Glu Val Leu Ser Thr Asn Gly Asp Thr His Leu Gly Gly Asp Asp
             20                  25                  30
Phe Asp Gly Val Ile Xaa Asn Trp Met Leu Asp Glu Phe Lys Lys Gln
         35                  40                  45
Glu Gly Ile Asp Leu Ser Lys Asp Asn Met Ala Leu Gln Arg Leu Lys
     50                  55                  60
Asp Ala Ala Glu Lys Ala Lys Ile Glu Leu Ser Gly Val Ser Ser Thr
 65                  70                  75                  80
Glu Ile Asn Gln Pro Phe Ile Thr Ile Asp Ala Asn Gly Pro Lys His
                85                  90                  95
Leu Ala Leu Thr Leu Thr Arg Ala Gln Phe Glu His Leu Ala Ser Ser
            100                 105                 110
Leu Ile Glu Arg Thr Lys Gln Pro Cys Ala Gln Ala Leu Lys Asp Ala
        115                 120                 125
Lys Leu Ser Ala Ser Asp Ile Asp Asp Val Leu Leu Val Gly Gly Met
    130                 135                 140
Ser Arg Met Pro Ala Val Gln Ala Val Val Lys Glu Ile Phe Gly Lys
145                 150                 155                 160
Glu Pro Asn Lys Gly Val Asn Pro Asp Glu Val Val Ala Ile Gly Ala
                165                 170                 175
Ala Ile Gln Gly Gly Val Leu Gly Gly Glu Val Lys Asp Val Leu Leu
            180                 185                 190
Leu Asp Val Ile Pro Leu Ser Leu Gly Ile Glu Thr Leu Gly Gly Val
        195                 200                 205
Met Thr Pro Leu Val Glu Arg Asn Thr Thr Ile Pro Thr Gln Lys Lys
    210                 215                 220
Gln Ile Phe Ser Thr Ala Ala Asp Asn Gln Pro Ala Val Thr Ile Val
225                 230                 235                 240
Val Leu Gln Gly Glu Arg Pro Met Ala Lys Asp Asn Lys Glu Ile Gly
                245                 250                 255
Arg Phe Asp Leu Thr Asp Ile Pro Pro Xaa Xaa Arg Gly His Pro Gln
            260                 265                 270
Ile Glu Val Thr Phe Asp Ile Asp Ala Asn Gly Ile Leu His Val Ser
        275                 280                 285
Ala Lys Asp Ala Ala Ser Gly Arg Glu Gln Lys Ile Arg Ile Glu Ala
    290                 295                 300
Ser Ser Gly Leu Lys Glu Asp Glu Ile Gln Gln Met Ile Arg Asp Ala
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US 2002/0009460 A1

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305                 310                 315                 320
Glu Leu His Lys Glu Glu Asp Lys Gln Arg Lys Glu Ala Ser Asp Val
                325                 330                 335
Lys Asn Glu Ala Asp Gly Met Ile Phe Arg Ala Glu Lys Ala Val Lys
            340                 345                 350
Asp Tyr His Asp Lys Ile Pro Ala Glu Leu Val Lys Glu Ile Glu Glu
        355                 360                 365
His Ile Glu Lys Val Arg Gln Ala Ile Lys Glu Asp Ala Ser Thr Thr
    370                 375                 380
Ala Ile Lys Ala Ala Ser Asp Glu Leu Ser Thr Arg Met Gln Lys Ile
385                 390                 395                 400
Gly Glu Ala Met Gln Ala Gln Ser Ala Ser Ala Ala Ala Ser Ser Ala
                405                 410                 415
Ala Asn Ala Gln Gly Gly Pro Asn Ile Asn Ser Glu Asp Leu Lys Lys
            420                 425                 430
His Ser Phe Ser Thr Arg Pro Pro Ala Gly Gly Ser Ala Ser Ser Thr
        435                 440                 445
Asp Asn Ile Glu Asp Ala Asp Val Glu Ile Val Asp Lys Pro Glu
    450                 455                 460
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Pro Ile Leu Lys Lys His Trp Leu Leu Leu Ser Asp Ser Ser Val Glu
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Asn Ser Leu Lys Ser Asn Leu Lys Leu Lys Gln Ser Pro Thr Lys Leu
             20                  25                  30
Leu Leu Thr Arg Lys Val Asp Ala Val Phe Asp Val Glu Gln Lys Leu
         35                  40                  45
Tyr Thr Pro Glu Glu Ile Gly Ala Gln Ile Leu Met Lys Met Lys Glu
     50                  55                  60
Thr Ala Glu Ala Tyr Leu Gly Glu Thr Val Thr Glu Ala Val Ile Thr
 65                  70                  75                  80
Val Pro Ala Tyr Phe Asn Asp Ser Gln Arg Ala Ser Thr Lys Asp Ala
                 85                  90                  95
Gly Arg Ile Ala Gly Leu Asp Val Lys Arg Ile Ile Pro Asp Pro Thr
            100                 105                 110
Ala Ala Ala Leu Ala Tyr Gly Ile Asp Lys Glu Gly Asp Xaa Lys Ile
        115                 120                 125
Ala Val Phe Asp Leu Gly Gly Gly Thr Phe Asp Ile Ser Ile Leu Glu
    130                 135                 140
Ile Gly Asp Gly Ser Phe
145                 150
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<213>Chlamydia trachomatis
<400>23
Val Phe Asn Met Ser Glu Lys Arg Lys Ser Asn Lys Ile Ile Gly Ile
  1                 5                  10                  15
Asp Leu Gly Thr Thr Asn Ser Cys Val Ser Val Met Glu Gly Gly Gln
             20                  25                  30
Pro Lys Val Ile Ala Ser Ser Glu Gly Thr Arg Thr Thr Pro Ser Ile
         35                  40                  45
Val Ala Phe Lys Gly Gly Glu Thr Leu Val Gly Ile Pro Ala Lys Arg
     50                  55                  60
Gln Ala Val Thr Asn Pro Glu Lys Thr Leu Ala Ser Thr Lys Arg Phe
 65                  70                  75                  80
Ile Gly Arg Lys Phe Ser Glu Val Glu Ser Glu Ile Lys Thr Val Pro
                 85                  90                  95
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Tyr Lys Val Ala Pro Asn Ser Lys Gly Arg Cys Gly Leu
100 105

<210>24
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<212>PRT
<213>Chlamydia trachomatis
<400>24
Lys Met Leu Phe Met Asp Phe Leu Pro Pro Ile Glu Ser Met Glu Lys
1 5 10 15
Ala Leu Gly Phe Ala Ser Gln Thr Ser Glu Glu Val Lys Asn Trp Ala
20 25 30
Ile Gly Phe Gln Met Ile Leu Gln Gln Phe Lys Gln Ile Phe Glu Glu
35 40 45
Lys Gly Val Val Glu Tyr Ser Ser Lys Gly Glu Leu Phe Asn Pro Tyr
50 55 60
Leu His Glu Ala Val Glu Ile Glu Glu Thr Thr Thr Ile Pro Glu Gly
65 70 75 80
Thr Ile Leu Glu Glu Phe Thr Lys Gly Tyr Lys Ile Gly Asp Arg Pro
85 90 95
Ile Arg Val Ala Lys Val Lys Val Ala Lys Leu Pro Ala Lys Gly Asn
100 105 110
Ser Asp Ser Asn Glu Glu Lys Glu
115 120

<210>25
<211>95
<212>PRT
<213>Chlamydia trachomatis
<400>25
Met Thr Glu Thr Pro Asn Thr Ser Ser Glu Glu Ile Gln Thr Ser Glu
1 5 10 15
Pro Ser Pro Asp Asn Glu Leu Gln Val Leu Gln Gln Glu Asn Ala Asn
20 25 30
Leu Lys Ala Glu Leu Gln Glu Gln Asn Asp Arg Tyr Leu Met Ala Leu
35 40 45
Ala Glu Ala Glu Asn Ser Arg Lys Arg Leu Gln Lys Glu Arg Thr Glu
50 55 60
Met Met Gln Tyr Ala Val Glu Asn Ala Leu Tyr Gly Phe Pro Ser Ser
65 70 75 80
Tyr Arg Lys Tyr Gly Glu Gly Phe Gly Ile Arg Phe Ser Asn Leu
85 90 95

<210>26
<211>392
<212>PRT
<213>Chlamydia trachomatis
<400>26
Met Glu Asn Arg Ile Glu Met Ser Gln Leu Arg Ala Ser Lys Lys Asp
1 5 10 15
Ser Lys Ile Ser Tyr Val Leu Leu Met Ala Thr Lys Leu Tyr Leu Glu
20 25 30
Ser Gly Gln Pro Val Gly Ser Lys Leu Leu Glu Glu Thr Tyr Cys Ser
35 40 45
Asp Leu Ser Ser Ala Thr Ile Arg Asn Tyr Phe Ala Gln Leu Glu Thr
50 55 60
Asn Gly Phe Leu Arg Lys Asn His Ile Ser Gly Gly Arg Ile Pro Thr
65 70 75 80
Asp Leu Ala Phe Arg Tyr Tyr Ala Asp His Asn Ala Pro Phe Leu Glu
85 90 95
Gln Glu Glu Ile Leu Ala Ile Gln Gln Lys Leu Thr Glu Leu Pro Glu
100 105 110
Tyr Ser Lys Asn Ile Val Lys Asp Leu Gln Lys Ala Ser Glu Val Leu
115 120 125

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Ser Asp Ile Leu Gln Leu Pro Val Cys Phe Ser Ser Pro Arg Phe Glu
130 135 140
Ser Asp Ser Val Ile Asn Ile Gln Leu Val Ala Ile Asp Asp Gln Arg
145 150 155 160
Val Val Phe Val Leu Ser Thr Glu Phe Gly Gln Val Phe Thr Asp Val
165 170 175
Leu Trp Leu Pro Glu Gln Leu Pro Glu Asn Ser Leu Lys Arg Ile Glu
180 185 190
Gly Phe Leu Gln Asn Tyr Leu Arg Lys Gln Pro Ser Asp Ser Leu Leu
195 200 205
Ser Gln Lys Glu Glu Asp Leu Gly Met Val Leu Tyr Asn Glu Val Val
210 215 220
Val Arg Tyr Leu Thr Arg Tyr Cys His Phe Ser Glu Glu Asp Leu Tyr
225 230 235 240
Gln Thr Gly Leu Ser Arg Leu Leu Lys Tyr Glu Thr Phe Lys Asp Pro
245 250 255
Glu Thr Leu Ala Gln Gly Leu Ala Phe Phe Glu Asn Arg Lys His Met
260 265 270
Cys Gln Leu Leu Asn Thr Tyr Leu His Lys Glu Thr Pro Thr Ala Phe
275 280 285
Ile Gly Arg Glu Leu Thr Asp Ile Val Gly Asn Thr Asp Pro Ser Cys
290 295 300
Ala Val Ile Thr Ile Pro Tyr Tyr Met Asp Arg Thr Pro Leu Gly Ala
305 310 315 320
Phe Gly Val Leu Gly Pro Met Asn Leu Pro Tyr Gln Gln Val Phe Gly
325 330 335
Thr Leu Ser Leu Phe Thr Glu Arg Leu Lys Val Ile Leu Thr Gln Ser
340 345 350
Phe Tyr Lys Phe Lys Leu Ser Phe Arg Arg Pro Cys Pro Thr Asp Pro
355 360 365
Arg Cys Ser Gln Arg Pro Ala Glu Leu Thr Arg Ser Ser Ser Ile Lys
370 375 380
Leu Leu Pro Ala Lys Glu Leu Ser
385 390

<210>27
<211>581
<212>PRT
<213>Chlamydia trachomatis
<400>27

Met Arg Thr Ser Leu Leu Phe Tyr Arg Thr Ser Lys Asn Ala Asn Lys
1 5 10 15
Glu Ala Ser Val Leu Ser Tyr Glu Leu Leu Gln Lys Ala Gly Tyr Leu
20 25 30
Phe Lys Thr Ser Lys Gly Ile Tyr Ser Tyr Thr Pro Leu Phe Gln Arg
35 40 45
Val Ile Leu Lys Met Thr Glu Ile Ile Arg Glu Glu Leu Asn Ala Ile
50 55 60
Gly Gly Gln Glu Val Cys Leu Pro Leu Leu Gln Pro Ala Glu Leu Trp
65 70 75 80
Glu Lys Thr Gly Arg Trp Lys Ala Phe Leu Ser Glu Lys Leu Leu Tyr
85 90 95
Val Leu Lys Asp Arg Glu Asn Lys Ala Met Cys Leu Ala Pro Thr His
100 105 110
Glu Glu Val Val Ser Glu Phe Val Ala Gln Trp Leu Thr Gly Arg Glu
115 120 125
Gln Leu Pro Ile His Leu Tyr Gln Ile Gly Thr Lys Phe Arg Asp Glu
130 135 140
Ile Arg Pro Arg Phe Gly Leu Met Arg Ala Lys Glu Phe Leu Met Glu
145 150 155 160
Asp Ser Tyr Thr Phe Ser Asp Ser Pro Glu Gln Met Glu Glu Gln Tyr
165 170 175

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Ala Lys Leu Arg Leu Ala Tyr Gln Arg Ile Phe Asp Arg Leu Asn Leu
            180                 185                 190
Lys Tyr Val Ile Val Ala Ala Asp Gly Gly Lys Ile Gly Lys Gly Lys
        195                 200                 205
Ser Glu Glu Phe His Val Leu Cys Ser Leu Gly Glu Asp Thr Ile Cys
    210                 215                 220
Val Ser Gly Ser Tyr Gly Ala Asn Val Glu Ala Ala Gln Ala Ile Pro
225                 230                 235                 240
Pro Ser Tyr Val Tyr Asp Ser Asn Leu Leu Pro Val Glu Glu Val Ala
                245                 250                 255
Thr Pro Asn Ile Arg Thr Ile Glu Asp Leu Glu Val Phe Phe Asn Thr
            260                 265                 270
Pro Lys His Lys Ile Leu Lys Thr Leu Val Val Lys Thr Arg Gln Lys
        275                 280                 285
Asp Ser Glu Lys Phe Phe Ala Ile Cys Ile Arg Gly Asp Arg Gln Ile
    290                 295                 300
Asn Leu Thr Lys Val Ala Ser Phe Leu Gln Val Asp Asp Cys Glu Leu
305                 310                 315                 320
Ala Ser Glu Glu Glu Ile Leu Lys His Leu His Val Glu Lys Gly Phe
                325                 330                 335
Ile Gly Pro Leu Tyr Cys Pro Ile Pro Cys Tyr Ala Asp Glu Thr Thr
            340                 345                 350
Arg Pro Met Thr Asn Phe Ile Cys Ala Asn Asn Gln Lys Asp Val His
        355                 360                 365
Cys Lys His Val Asn Trp Gly Arg Asp Ile Pro Leu Pro Ala Phe Gly
    370                 375                 380
Asp Phe Leu Leu Ala Glu Ala Gly Asp Leu Cys Pro Gln Asn Gly Gly
385                 390                 395                 400
Ala Pro Tyr Glu Ile Phe Gln Gly Val Glu Val Ala His Ile Phe Asn
                405                 410                 415
Leu Gly Thr Arg Tyr Thr Glu Ser Phe Ser Val Gly Phe Gln Asp Lys
            420                 425                 430
Asn Gly Asp Lys Gln Leu Cys Trp Met Gly Thr Tyr Gly Ile Gly Val
        435                 440                 445
Gly Arg Thr Leu Ala Ala Cys Ile Glu Gln Leu Ala Asp Asn Lys Gly
    450                 455                 460
Leu Val Trp Pro Leu Ala Val Ala Pro Phe Ser Ile Thr Ile Leu Tyr
465                 470                 475                 480
Asn Gly Gly Asp Thr Glu Gly Glu Ala Thr Ala Leu Gln Leu Tyr Gln
                485                 490                 495
Ser Leu Asn Thr Glu Gly Phe Glu Pro Leu Leu Asp Asp Arg Asn Glu
            500                 505                 510
Arg Leu Gly Phe Lys Leu Lys Asp Ser Asp Leu Leu Gly Ile Pro Tyr
        515                 520                 525
Lys Leu Ile Ile Gly Lys Ser Phe Gln Ser Thr Gly Leu Leu Glu Ile
    530                 535                 540
Glu Ser Arg Ser Gly Glu Lys Cys Asn Val Ser Pro Glu Asn Leu Leu
545                 550                 555                 560
Asp Trp Cys Ser Lys Asn Leu Pro Cys His Thr Arg Lys Ile Pro Pro
                565                 570                 575
Leu Arg Glu Gln Asn
            580
<210>28
<211>357
<212>PRT
<213>Chlamydia trachomatis
<400>28
Gly Arg Arg Gly Asp Glu Ser Arg Arg Val Thr Pro Ser Gly Gln Thr
  1               5                  10                  15
Ile Ser Phe Pro Ala Val Gly Lys Ser Thr Ser Ala Glu Asp Ile Gln
             20                  25                  30
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Gln Leu Ala Leu Pro Ile Ile Gln Ser Asp Ala Met Ala Ser Ser Pro
          35                  40                  45
Ser Val Gly Gly Ala Val Gly Glu Val Glu Val Ala Glu Ile Ile Ala
      50                  55                  60
Asp Val Met Glu Lys Asn Asp Ala Asn Val Gln Lys Leu Asp Glu Asp
  65                  70                  75                  80
Met Glu Ala Leu Leu Gln Ala Ile Ser Ser Ser Glu Glu Gln Leu Glu
                  85                  90                  95
Ser Pro Gly Val Arg Asn Lys Ser Ala Leu Lys Gly Thr Asn Arg Ser
             100                 105                 110
Asn Ser His Arg Glu Glu Ile Ala Arg Asn Gln Arg Leu Arg Ser Leu
         115                 120                 125
Ser Val Arg His Gly Leu Ala His Asn Arg His Ser Leu Arg Arg Leu
     130                 135                 140
Ala Arg Gly Ile Arg His His Ala Gly Leu Val Thr Ala Ser Phe Ala
145                 150                 155                 160
Thr Leu His Lys Thr Leu Arg Ala Val Pro Gln Glu Asp Leu Lys Ser
                 165                 170                 175
Ile Leu Gly Lys Asp Ser Asp Thr Val Leu Ala Arg Leu His Lys Leu
             180                 185                 190
Gly Leu Glu Val Asn Glu Lys Gly Glu Trp Arg Leu Arg Ala Asn Gly
         195                 200                 205
Glu Val Gly Ser Ile Asn Gln Ser Ile Ser Asn Leu Ala Arg Ser Ala
     210                 215                 220
Glu Arg Leu His Asp Asp Gly Pro Leu Ser Ile Asn Asp Gln Ala Ser
225                 230                 235                 240
Glu Glu Glu Val Thr Ala Cys Cys Ser Val Gly Arg Arg Ala Cys Gln
                 245                 250                 255
Phe Leu Gln Glu His Leu Met Gly Ala Leu Arg Ala Ile Tyr Tyr Gln
             260                 265                 270
Ile Leu Arg Phe Phe His Trp Ile Ser Arg Arg Val Glu Val Glu Ser
         275                 280                 285
Glu Asp Thr Asp Tyr Tyr Met Arg Pro Gly Thr Phe Ile Asn Pro Tyr
     290                 295                 300
Ala Ser Tyr Leu Ser Ser Ser Pro Ser Val Glu Asp Pro Arg Ser Leu
305                 310                 315                 320
Arg Asp Arg Leu Arg Asp Gly Gly Ala Leu Ser Gly Glu Asp Thr Leu
                 325                 330                 335
Phe Ser Met Pro Gln Asp Glu Ser Leu Asp Ser Glu Ser Val Ser Asp
             340                 345                 350
Asp Asp Arg Gly Phe
         355
<210>29
<211>352
<212>PRT
<213>Chlamydia trachomatis
<400>29
Gln Pro Ala Asn Val Tyr Lys Trp Leu Leu Leu Cys Asn His Lys Val
  1                   5                  10                  15
Cys Met Leu Leu Arg Lys Phe Cys Gly Tyr Leu Phe Cys Ser Ser Leu
             20                  25                  30
Val Cys Ser Phe Ile Ser Val Ile Val Val Ser Phe Arg Ser Glu Pro
         35                  40                  45
Ile Thr Pro Ser Ile Ala Ile Phe Ser Ser Phe Ser His Asn Ser Leu
     50                  55                  60
Ser Glu Cys Ile Glu Ser Cys Gln Lys Glu Leu Thr Ser Phe Gly Asn
  65                  70                  75                  80
Met Pro Thr Ile Ser Leu Phe Asn Ala Glu Asp Asn Val Val Lys Ala
                 85                  90                  95
Arg Lys Ile Ala Arg Thr Leu His Lys Asp Pro Asn Val Val Met Ile
             100                 105                 110
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Ile Thr Leu Gly Pro Ile Ala Thr Lys Val Met Ser Gln Ile Glu Thr
        115                 120                 125
Gln Lys Pro Ile Ile Tyr Ala Val Val Pro Ala Gly Glu Ala Leu Arg
    130                 135                 140
Phe Pro Lys Glu Gln Val Asn Ile Tyr Gly Val Asn Asp Ser Val Asp
145                 150                 155                 160
Thr Asn Gln Cys Cys Phe Ala Ile His Ala Val Thr Asn Asn Ala Asn
                165                 170                 175
Ser Leu Val Tyr Leu Gln Pro His Glu Pro Phe Pro Ser Ser Leu Gln
            180                 185                 190
Glu Glu Ile Thr Asn Lys Leu Arg Ala Ser Gly Ile Lys Val Thr Glu
        195                 200                 205
Leu Pro Ile Ser Ala Ala Asn Met Ser Ser Arg Ile Gln Phe Ile Ala
    210                 215                 220
Glu Asn Arg Pro Ser Ala Val Phe Phe Pro Leu Ser Ser Leu Ser Glu
225                 230                 235                 240
Lys Met Gly Thr Thr Leu Ile Lys Ser Ile Leu Lys Glu Asn Ile Pro
                245                 250                 255
Leu Ile Thr Asp Asp Ser Ser Leu Val Met Glu Gly Ala Cys Ala Ala
            260                 265                 270
Cys Ser Val Asp Tyr Lys Leu Ser Gly Lys Gln Ile Ala Cys Ile Val
        275                 280                 285
Arg Tyr Leu Leu Ser Lys Lys Asn Asn Glu Glu His Leu Asn Gln Ile
    290                 295                 300
Ser Ala Glu Pro Ile Leu Ser Lys Ile Thr Phe Asn Glu Glu Ile Ile
305                 310                 315                 320
Arg Phe Leu Gly Leu Pro Phe Asn Met Ala Pro Ala His Gln Phe Ile
                325                 330                 335
Ser Phe His Ser Ala Asp Asn Thr Gly Leu Val Thr Leu Gln Ile Pro
            340                 345                 350
<210>30
<211>406
<212>PRT
<213>Chlamydia trachomatis
<400>30
Leu Thr Leu Pro Cys Phe Met Asp Phe Arg Trp Phe Met Lys Arg Asn
  1                 5                  10                  15
Pro His Phe Val Ser Leu Thr Lys Asn Tyr Leu Phe Ala Asp Leu Gln
             20                  25                  30
Lys Arg Val Ala Gln Phe Arg Leu Glu Asn Pro Gln His Thr Val Ile
         35                  40                  45
Asn Leu Ser Ile Gly Asp Thr Thr Gln Pro Leu Asn Ala Ser Val Ala
     50                  55                  60
Glu Ala Phe Ala Ser Ser Ile Ala Arg Leu Ser Ser Pro Thr Thr Cys
 65                  70                  75                  80
Arg Gly Tyr Gly Pro Asp Phe Gly Leu Pro Ala Leu Arg Gln Lys Leu
                 85                  90                  95
Ser Glu Asp Phe Tyr Arg Gly Cys Val Asp Ala Lys Glu Ile Phe Ile
            100                 105                 110
Ser Asp Gly Ala Lys Ala Asp Leu Phe Arg Leu Leu Ser Phe Phe Gly
        115                 120                 125
Pro Asn Gln Thr Val Ala Ile Gln Asp Pro Ser Tyr Pro Ala Tyr Leu
    130                 135                 140
Asp Ile Ala Arg Leu Thr Gly Ala Lys Glu Ile Ile Ala Leu Pro Cys
145                 150                 155                 160
Leu Gln Glu Asn Ala Phe Phe Pro Glu Phe Pro Glu Asp Thr His Ile
                165                 170                 175
Asp Ile Leu Cys Leu Cys Ser Pro Asn Asn Pro Thr Gly Thr Val Leu
            180                 185                 190
Asn Lys Asp Gln Leu Arg Ala Ile Val His Tyr Ala Ile Glu His Glu
        195                 200                 205
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Ile Leu Ile Leu Phe Asp Ala Ala Tyr Ser Thr Phe Ile Ser Asp Pro
    210                 215                 220
Ser Leu Pro Lys Ser Ile Phe Glu Ile Pro Asp Ala Arg Phe Cys Ala
225                 230                 235                 240
Ile Glu Ile Asn Ser Phe Ser Lys Pro Leu Gly Phe Ala Gly Ile Arg
                245                 250                 255
Leu Gly Trp Thr Val Ile Pro Gln Glu Leu Thr Tyr Ala Asp Gly His
            260                 265                 270
Phe Val Ile Gln Asp Trp Glu Arg Phe Leu Ser Thr Thr Phe Asn Gly
        275                 280                 285
Ala Ser Ile Pro Ala Gln Glu Ala Gly Val Ala Gly Leu Ser Ile Leu
    290                 295                 300
Pro Gln Leu Glu Ala Ile His Tyr Tyr Arg Glu Asn Ser Asp Leu Leu
305                 310                 315                 320
Arg Lys Ala Leu Leu Ala Thr Gly Phe Glu Val Phe Gly Gly Glu His
                325                 330                 335
Ala Pro Tyr Leu Trp Val Lys Pro Thr Gln Ala Asn Ile Ser Asp Arg
            340                 345                 350
Asp Leu Phe Asp Phe Phe Leu Arg Glu Tyr His Ile Ala Ile Thr Pro
        355                 360                 365
Gly Ile Gly Phe Gly Arg Ser Gly Ser Gly Phe Val Arg Phe Ser Ser
    370                 375                 380
Leu Gly Lys Arg Glu Asp Ile Leu Ala Ala Cys Glu Arg Leu Gln Met
385                 390                 395                 400
Ala Pro Ala Leu Gln Ser
                405

<210>31
<211>230
<212>PRT
<213>Chlamydia trachomatis
<400>31
Arg Arg Ser Arg Arg Lys Thr Cys Trp Leu Cys Tyr Phe Gly Gly Asp
  1                 5                  10                  15
Phe Ile Phe Leu Arg Leu Phe Asp Val Ser Arg Phe His Gly Asp Met
             20                  25                  30
Asp Ile Gly Leu Gln Gly Ala Val Phe Ser Val Phe Asp Leu Asp His
         35                  40                  45
Pro Glu Ala Cys Met Val Asn Ser Asp Phe Phe Val Ala Ala Leu Cys
     50                  55                  60
Asn Phe Ala Val Asn Lys Trp Ser Tyr Arg Phe Arg Leu Trp His Leu
 65                  70                  75                  80
Ser Ser His Leu Gly Asp Glu Phe Ile Leu Ala Asn Gln Leu Pro Pro
                 85                  90                  95
Lys Lys Arg Tyr Asn Arg Ser Asp Glu Ala Val Asp Phe Phe Ala Ser
            100                 105                 110
Phe Arg Tyr Thr Pro Gln Ile Arg Val Tyr Gly Gly Ile Gly Tyr Ile
        115                 120                 125
Ile Ser Arg Asp Ser Thr Phe Pro Glu Asp Pro Leu Tyr Phe Glu Gly
    130                 135                 140
Gly Ile Glu Leu Arg Pro Phe Gly Leu Arg Glu Asp Asn Leu His Ala
145                 150                 155                 160
Gln Pro Val Phe Ala Met His Phe Arg Phe Trp Glu Glu His Asp Phe
                165                 170                 175
Ser Ile Asp Gln Thr Tyr Ile Val Gly Met Glu Trp Ser Lys Phe Gln
            180                 185                 190
Asp Val Gly Arg Lys Val Arg Ala Val Leu Glu Tyr His Gln Gly Phe
        195                 200                 205
Ser His Glu Gly Gln Phe Val Arg Glu Glu Cys Asp Tyr Tyr Gly Phe
    210                 215                 220
Arg Leu Ser Tyr Gly Phe
225                 230
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<210>32
<211>254
<212>PRT
<213>Chlamydia trachomatis
<400>32
Arg Gly Cys Leu Ile Thr His Thr Asn Met Met Lys Pro Leu Arg Phe
1 5 10 15
Gly Tyr Phe Phe Cys Ala Ile Tyr Phe Thr Leu Leu Gln Ala Ala Phe
20 25 30
Ala Lys Glu Pro Asn Ser Cys Pro Asp Cys Gln Asn Asn Trp Lys Glu
35 40 45
Val Thr Tyr Thr Asp Gln Leu Pro Glu Asn Ile Ile His Ala Asp Asp
50 55 60
Ala Cys Tyr His Ser Gly Tyr Val Gln Ala Leu Ile Asp Met His Phe
65 70 75 80
Leu Asp Ser Cys Cys Gln Val Ile Val Glu Asn Gln Thr Ala Tyr Leu
85 90 95
Phe Ser Leu Pro Thr Asp Asp Val Thr Arg Asn Ala Ile Ile Asn Leu
100 105 110
Ile Lys Asp Leu Pro Phe Ile His Ser Val Glu Ile Cys Gln Ala Ser
115 120 125
Tyr Gln Thr Cys His His Gln Gly Pro His Gly Lys Thr Ser Leu Pro
130 135 140
Glu Gln Arg Ser Phe Cys Thr Lys Val Cys Gly Lys Glu Ala Ile Trp
145 150 155 160
Leu Pro Gln Asn Thr Ile Leu Phe Ser Pro Leu Val Ala Asp Pro Arg
165 170 175
Gln Ala Thr Asn Ser Ala Gly Ile Arg Phe Asn Asp Glu Val Val Gly
180 185 190
Lys Arg Val Gly Ser Ala Thr Ser Val Glu Ile Leu Ser Ser Tyr Asp
195 200 205
Tyr Leu Met Ser Pro Asp Ser Met Glu Thr Trp Ile Leu Val Ser Lys
210 215 220
Glu Leu Tyr Ser Leu Phe Ser Thr Trp Ile Ile Gln Lys Leu Ala Trp
225 230 235 240
Ser Thr Leu Thr Phe Leu Ser Pro Leu Cys Ala Thr Leu Gln
245 250
<210>33
<211>115
<212>PRT
<213>Chlamydia trachomatis
<400>33
Val Arg Phe Leu Leu Lys Leu Leu Ser Lys Glu Lys Glu Asn Ile Leu
1 5 10 15
Leu Glu Gly Phe Trp Val Leu Glu Val Arg Val Thr Thr Lys Ala Arg
20 25 30
Glu Asn Arg Val Val Cys Leu Glu Asp Gly Ile Leu Arg Val Arg Val
35 40 45
Thr Glu Val Pro Glu Lys Gly Lys Ala Asn Asp Ala Val Val Ala Leu
50 55 60
Leu Ala Asn Phe Leu Ser Ile Pro Lys Ser Asp Val Thr Leu Ile Ala
65 70 75 80
Gly Glu Ala Ser Arg Arg Lys Lys Val Leu Leu Pro Arg Ser Ile Lys
85 90 95
Ala Phe Leu Leu Glu Gln Phe Pro Ser Glu Ser Ser Ser Thr Thr Gly
100 105 110
Lys Lys Ser
115
<210>34
<211>519
<212>PRT

<213>Chlamydia trachomatis
<400>34

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Phe Gly Tyr Leu Leu Asp Ser Phe Leu Leu Phe Lys Asn His Leu Val
  1               5                  10                  15
Ile Pro Asn Ser Ala Phe Arg His Phe Leu Ala Leu Tyr Gln Gln Ile
             20                  25                  30
Val Glu Gly Gln His Val Pro Cys Gly Asn His Ile Leu Leu Ile Lys
         35                  40                  45
Thr Glu Pro Leu His Ile Arg Thr Val Phe Ala Arg Val Val Asn Gln
     50                  55                  60
Leu Leu Pro Gln Gly Leu Ser His Thr Ser Ala Asn Ile Leu Glu Pro
 65                  70                  75                  80
Thr Thr Arg Glu Ser Gly Asp Ile Phe Glu Phe Phe Gly Asn Pro Ser
                 85                  90                  95
Ala Gln Ile Glu Arg Ile Pro Leu Glu Phe Phe Thr Ile Glu Pro Tyr
            100                 105                 110
Lys Glu His Ser Tyr Phe Cys Asn Arg Asp Leu Leu Gln Thr Thr Leu
        115                 120                 125
Gln Ser Glu Ser Glu Ile Lys Lys Ile Phe Glu Thr Ala Pro Lys Glu
    130                 135                 140
Pro Val Lys Ala Ala Thr Tyr Leu Ser Lys Gly Ser Glu Ile Ser Ser
145                 150                 155                 160
Leu His Thr Asp Ser Trp Leu Thr Gly Ser Ala Ala Ala Tyr Gln Tyr
                165                 170                 175
Ser Glu Gln Ala Asp Lys Asn Glu Tyr Thr His Ala Gln Pro Cys Tyr
            180                 185                 190
Pro Phe Leu Glu Ala Met Glu Met Gly Leu Ile Asn Ser Glu Gly Ala
        195                 200                 205
Leu Leu Thr Arg Tyr Phe Pro Ser Ala Ser Leu Lys Gly Met Leu Ile
    210                 215                 220
Ser Tyr His Val Arg His Tyr Leu Lys Gln Ile Tyr Phe Gln Val Pro
225                 230                 235                 240
Ser Tyr Thr His Gly Asn Tyr Phe Ser His Asn Asp Arg Gly Leu Leu
                245                 250                 255
Leu Asp Leu Gln Gln Ala Asp Ile Asp Val Phe Trp Ala Asp Glu Glu
            260                 265                 270
Ser Gly Arg Val Leu Gln Tyr Thr Lys Arg Arg Asp Lys Asn Ser Gly
        275                 280                 285
Met Phe Val Ile Lys Asn Arg Val Glu Glu Phe Arg Ser Ala Tyr Phe
    290                 295                 300
Ile Ala Ile Tyr Gly Ser Arg Leu Leu Glu Asn Asn Phe Ser Ala Gln
305                 310                 315                 320
Leu His Thr Leu Leu Ala Gly Leu Gln Gln Ala Ala His Thr Leu Gly
                325                 330                 335
Ile Pro Gly Phe Ser Lys Pro Thr Pro Leu Ala Val Ile Thr Gly Gly
            340                 345                 350
Gly Thr Gly Val Met Ala Thr Gly Asn Arg Val Ala Lys Glu Leu Gly
        355                 360                 365
Ile Leu Ser Cys Gly Thr Val Leu Asp Leu Glu Ala Ser Pro Ala Gln
    370                 375                 380
Ile Asp Gln Pro Thr Asn Glu Phe Leu Asp Ala Lys Met Thr Tyr Arg
385                 390                 395                 400
Leu Pro Gln Leu Ile Glu Arg Gln Glu His Phe Tyr Ala Asp Leu Pro
                405                 410                 415
Ile Leu Val Val Gly Gly Val Gly Thr Asp Phe Glu Leu Tyr Leu Glu
            420                 425                 430
Leu Val Tyr Leu Lys Thr Gly Ala Lys Pro Pro Thr Pro Ile Phe Leu
        435                 440                 445
Ile Gly Pro Ile Glu Tyr Trp Lys Glu Lys Val Ala His Ala Tyr Glu
    450                 455                 460
Ile Asn Leu Lys Ala Gly Thr Ile Arg Gly Ser Glu Trp Ile Ser Asn
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465                 470                 475                 480
Cys Leu Tyr Cys Ile Thr Ser Pro Glu Ala Gly Ile Ala Val Phe Glu
                485                 490                 495
Gln Phe Leu Ala Gly Glu Leu Pro Ile Gly Tyr Asp Tyr Pro Pro Ala
            500                 505                 510
Pro Asp Gly Leu Val Ile Val
        515
<210>35
<211>196
<212>PRT
<213>Chlamydia trachomatis
<400>35
Ala Gly Ser Ser His Thr Arg Ile Pro Met Thr Leu Phe His Ser His
  1               5                  10                  15
His Asp Ala Val Ser Pro Asp Gly Tyr Leu Cys Ser Ser Leu Gln Leu
             20                  25                  30
Val Gly Thr Gly Val Tyr Glu Gly Glu Ile Glu Ile Gln Asn Ile Pro
         35                  40                  45
Ser Tyr Phe Leu Gly Phe Gln Leu Pro Ser His Cys Ile His Leu Asn
     50                  55                  60
Leu Lys Ser Ser Leu Ala Gln Leu Gly Ile Asp Ala Ser Leu Leu His
 65                  70                  75                  80
Cys Glu Leu Ser Lys Asn Gln His Arg Ala His Ile His Ala Gln Phe
                85                  90                  95
Thr Gly His Gly Pro Ile Ala Glu Ser Met Leu Ala Leu Leu Gln Pro
            100                 105                 110
Gly Asp Arg Val Ala Lys Leu Phe Ala Ala Asp Asp Arg Arg Leu Val
        115                 120                 125
Arg Ser Pro Asp Tyr Leu Glu Ser Met Leu Lys Asn Thr Asp Lys Ala
    130                 135                 140
Gly His Pro Leu Leu Cys Phe Gly Lys Lys Leu Glu His Leu Ile Ser
145                 150                 155                 160
Phe Asp Val Val Asp Asp Arg Leu Val Val Ser Leu Pro Ser Leu Pro
                165                 170                 175
Gly Val Val Arg Tyr Asp Ser Asp Ile Tyr Trp Thr Pro Ser Ser Tyr
            180                 185                 190
Ser Lys Ile Thr
        195
<210>36
<211>304
<212>PRT
<213>Chlamydia trachomatis
<400>36
Leu Phe Val Val Leu Leu Ser Arg Gly Ser Arg Arg Ile Met Arg Met
  1               5                  10                  15
Gln Ile Pro Arg Ser Val Gly Thr His Asp Gly Ser Phe His Ala Asp
             20                  25                  30
Glu Val Thr Ala Cys Ala Leu Leu Ile Met Phe Asp Leu Val Asp Glu
         35                  40                  45
Asn Lys Ile Val Arg Thr Arg Asp Pro Gln Lys Leu Ala Gln Cys Glu
     50                  55                  60
Tyr Val Cys Asp Val Gly Gly Arg Tyr Ser Thr Glu His Lys Arg Phe
 65                  70                  75                  80
Asp His His Gln Val Ser Tyr Thr Gly Ser Trp Ser Ser Ala Gly Met
                85                  90                  95
Val Leu Asp Tyr Leu His Gly Leu Gly Phe Leu Ser His Asp Glu Tyr
            100                 105                 110
Glu Tyr Leu Asn Asn Thr Leu Val His Gly Val Asp Glu Gln Asp Asn
        115                 120                 125
Gly Arg Phe Phe Ser Lys Glu Gly Phe Cys Ser Phe Ser Asp Ile Ile
    130                 135                 140
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Lys Ile Tyr Asn Pro Leu Glu Glu Gly Gly Asn Thr Asp Lys Lys Ile
145                 150                 155                 160
Phe Phe Ala Leu Arg Phe Ala Ile Asp Leu Leu Thr Arg Leu Arg Glu
                165                 170                 175
Lys Phe Cys Tyr Asp Arg Val Cys Arg Asp Ile Val Lys Gln Val Met
            180                 185                 190
Glu Lys Glu Ser Val Cys Leu Arg Phe Asp Arg Pro Leu Ala Trp Gln
        195                 200                 205
Glu Asn Phe Phe Ser Leu Gly Gly Glu Ser His Pro Ala Ala Phe Val
    210                 215                 220
Ser Phe Pro Cys Ser Asp Gln Trp Ile Leu Arg Gly Ile Pro Pro Thr
225                 230                 235                 240
Leu Asp Arg Arg Met Glu Val Arg Ile Pro Phe Pro Glu Glu Trp Ala
                245                 250                 255
Gly Leu Leu Gly Asp Gln Leu Val Gln Ala Thr Gly Ile Pro Gly Ala
            260                 265                 270
Ile Phe Cys His Lys Gly Leu Phe Leu Ser Val Trp Asp Ser Gln Glu
        275                 280                 285
Ser Cys Glu Glu Ala Leu Asn Leu Val Leu Lys Gln Gln Arg Leu Val
    290                 295                 300
<210>37
<211>124
<212>PRT
<213>Chlamydia trachomatis
<400>37
Arg Ser Thr Glu Phe Ser Val Lys Thr Ala Glu Ile Ser Met Thr Thr
  1                 5                  10                  15
Ile Phe Glu Arg Ile Ile Glu Gly Ala Val Glu Cys Asp Lys Val Phe
             20                  25                  30
Glu Asp Glu Asn Phe Ile Val Ile Lys Asp Lys Phe Pro Gln Ala Pro
         35                  40                  45
Val His Leu Leu Ile Ile Pro Lys Lys His Ile Glu Lys Leu Gln Asp
     50                  55                  60
Ile Gln Gly Asp Asp Phe Leu Leu Leu Ala Glu Ala Gly Lys Ile Ile
 65                  70                  75                  80
Gln Leu Met Ala Arg Asn Phe Gly Ile Glu Asn Gly Tyr Arg Val Val
                 85                  90                  95
Val Asn Asn Gly Leu Glu Gly Gly Gln Ser Val Phe His Leu His Ile
            100                 105                 110
His Leu Leu Gly Gly Gly Leu Leu Gly Ser Ile Ala
        115                 120
<210>38
<211>251
<212>PRT
<213>Chlamydia trachomatis
<400>38
Glu Val Thr Gly Tyr Thr Arg Arg Arg Phe Ser Leu Ala Cys Arg Ser
  1                 5                  10                  15
Trp Glu Asp Tyr Ser Val Asp Gly Ser Lys Phe Arg Asp Arg Lys Trp
             20                  25                  30
Val Ser Arg Cys Cys Gln Gln Trp Leu Arg Arg Gly Ala Glu Arg Ile
         35                  40                  45
Pro Pro Thr His Ser Ser Ser Trp Trp Arg Leu Ile Arg Leu His Ser
     50                  55                  60
Ile Val Tyr Leu Leu Val Met Cys Cys Val Asp Gly Ser Asn Ser Ile
 65                  70                  75                  80
Gln Gln Arg Met Arg Phe Cys Glu Tyr Arg Thr Ala Ala Gln Glu Ala
                 85                  90                  95
Lys Thr Ser Leu Ser Ser Asp Cys Ser Leu Leu Glu Ala Arg Leu Ala
            100                 105                 110
Leu Arg Ala Leu Ala Lys His His Glu Tyr Ser Ala Trp Arg Glu Ala
```

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        115                 120                 125
Phe Leu Arg Ser Gln Glu Arg Phe Pro Ser Leu Glu Ala Asp Arg Asp
    130                 135                 140
Ile His Glu Asp Leu Ala Ala Ser Leu Leu Gln Lys Asn Ile Arg His
145                 150                 155                 160
Ser Ser Leu Thr Val Arg Val Ile Thr Ile Leu Ala Val Gly Met Ala
                165                 170                 175
Arg Asp Tyr Arg Leu Val Pro Ile Val Leu Gln Ala Leu Ser Asp Asp
            180                 185                 190
Ser Asp Thr Val Arg Glu Ile Ala Val Gln Val Ala Val Met Tyr Gly
        195                 200                 205
Ser Ser Cys Leu Leu Arg Ala Val Gly Asp Leu Ala Lys Asn Asp Phe
    210                 215                 220
Phe Tyr Ser Ser Thr His His Cys Leu Ser Cys Cys Ser Arg Val Gly
225                 230                 235                 240
Asp Thr Arg Ser Cys Ala Leu Ile Tyr Glu Leu
                245                 250
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<210>39
<211>358
<212>PRT
<213>Chlamydia trachomatis
<400>39

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Ser Lys Ile His Lys Leu Asp Gly Thr Glu Arg Arg Glu Ala Trp Arg
  1                 5                  10                  15
Ser Leu Cys Val Leu Thr Arg Pro His Ser Gly Val Leu Thr Gly Ile
             20                  25                  30
Asp Gln Ala Leu Met Thr Cys Glu Met Leu Lys Glu Tyr Pro Glu Lys
         35                  40                  45
Cys Thr Glu Glu Gln Ile Arg Thr Leu Leu Ala Ala Asp His Pro Glu
     50                  55                  60
Val Gln Val Ala Thr Leu Gln Ile Ile Leu Arg Gly Gly Arg Val Phe
 65                  70                  75                  80
Arg Ser Ser Ser Ile Met Glu Ser Val Gln Lys Leu Ala Cys Asn Ser
                 85                  90                  95
Leu Ser Ala Arg Val Gln Met Gln Ala Ala Ala Ile Leu Tyr Leu Glu
            100                 105                 110
Gly Asp Pro Phe Gly Glu Asp Lys Leu Thr Glu Gly Leu Ser Ala Thr
        115                 120                 125
Ser Ser Ile Leu Cys Glu Ala Ala Ser Glu Ala Val Cys Ser Leu Gly
    130                 135                 140
Ile His Gly Val His Leu Ala Gly Arg Phe Leu Ser Lys Val Gln Gly
145                 150                 155                 160
Met Arg Ser Arg Val Asn Leu Ala Phe Ala Leu Leu Val Ser Arg Glu
                165                 170                 175
Lys Val Glu Glu Ala Gly Asp Val Val Ala Ser Phe Met His Arg Ile
            180                 185                 190
Glu Pro Cys Gln Ala Ile Glu Gln Phe Leu Cys Glu Asp Gln Lys Ile
        195                 200                 205
Phe Val Ala Ser Ser Pro Leu Gln Val Glu Ile Met Lys Arg Asp Leu
    210                 215                 220
Ala Lys Lys Ile Ile Arg Leu Leu Val Ala Ala Gln Tyr Ser Lys Ala
225                 230                 235                 240
Lys Met Val Val Ala Gln Tyr Leu Ala Gly Gln Gln Val Gly Trp Ser
                245                 250                 255
Phe Cys Ser Glu Val Phe Trp Glu Glu Gly Asp Ser Glu Asp Phe Val
            260                 265                 270
Glu Pro Leu Gln Glu Glu Ser Phe Ala Phe Ala Leu Glu Lys Ala Leu
        275                 280                 285
Ser Phe Leu Gln Arg Glu Gly Gly Glu Ala Gly Leu His Ala Val Ile
    290                 295                 300
Ser Leu Tyr Pro His Ser Arg Trp Gln Asp Lys Leu Thr Ile Leu Glu
```

09/06/2001 - 09:32 PM

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305                 310                 315                 320
Ala Ile Ala Tyr Ser Glu Asn Arg Ile Ala Thr Cys Phe Leu Arg Glu
                325                 330                 335
Arg Cys Leu Gln Glu Ala Ala Ser Leu Gln Ser Ala Ala Ala Gly Ala
            340                 345                 350
Val Phe Ala Leu Phe Lys
        355
<210>40
<211>266
<212>PRT
<213>Chlamydia trachomatis
<400>40
Arg Gln Arg Lys Thr Phe Val Lys Ile Phe Ser Leu Tyr Arg Lys Met
  1               5                  10                  15
Ile Ala Arg Leu Leu Lys Ala Met Phe Gly Ser Ile Pro Cys Tyr Pro
            20                  25                  30
Gly Tyr Asn Asn Ile Pro Ala Tyr Ser Asn Ser Tyr Phe Tyr Cys Thr
        35                  40                  45
Leu Cys Asp Gly Val Val Ser Pro Thr Asn Val Asp Ile Ala Ile Val
    50                  55                  60
Val Pro Asn Lys Pro Thr Ala His Ser Glu Ser Lys Leu Ser Val Leu
65                  70                  75                  80
Arg Cys Lys Asn His Pro Val Lys Gly Leu His Ser Gly Gly Pro Ile
                85                  90                  95
Thr Ser Leu Arg Gly Leu Ile Pro Phe Leu Ser Pro Leu Leu Glu Glu
            100                 105                 110
Thr His Gln Lys Met Leu Asn Leu Cys Ala Arg Val His Cys Leu Asp
        115                 120                 125
Val Leu Thr Val Cys Ser Thr Leu Ile Ala Ser Leu Leu Ala Ile Thr
    130                 135                 140
Gly Ala Ile Leu Gln Phe Ile Val Ala Ala Pro Ile Pro Thr Phe Ile
145                 150                 155                 160
Pro Leu Ile Leu Phe Gly Val Ala Ile Ala Phe Tyr Leu Gly Ala Xaa
                165                 170                 175
Leu Cys Thr Arg Ile Ser Gln Lys Asp Thr Leu Arg Trp Gln Ala Leu
            180                 185                 190
Ser Lys Asn Ile Ile Arg Ser Ser His Asn Val Pro Val Gln Ala Gly
        195                 200                 205
Thr Glu Arg Tyr Thr Leu Leu Thr Glu Phe Pro Pro Thr Cys Tyr Glu
    210                 215                 220
Asn His Ser Ile Asp Leu Tyr Ser Ile Arg Pro Ser Ser Trp Cys Ala
225                 230                 235                 240
Pro Arg Val Val Val Lys Lys Thr Ala Cys Lys Leu Ser Ala Arg Ile
                245                 250                 255
Gln Lys Ile Leu Lys Asn Gln Arg Gly His
            260                 265
<210>41
<211>293
<212>PRT
<213>Chlamydia trachomatis
<400>41
Phe Ala Val His Glu Leu Arg Glu Glu Thr Arg Lys Thr Asn Leu Met
  1               5                  10                  15
Gly Lys Lys Arg Val Pro Leu Pro His Val Phe Asn Ser Asn Arg Ser
            20                  25                  30
Pro Val Ile Arg Leu Ser Glu Thr Val Ser Ile Gly Gly Gly Thr Pro
        35                  40                  45
Ile Ile Ile Ala Gly Pro Cys Thr Leu Glu Ser Gln Glu His Ala Ile
    50                  55                  60
Thr Leu Gly Leu Gln Val Lys Ser Ala Gly Ala His Ile Phe Arg Gly
65                  70                  75                  80
```

```
Ser Ile Arg Lys Pro Arg Thr Asn Pro His Ser Phe Gln Gly Trp Pro
                    85                  90                  95
Pro Asp His Val Val Trp His Ser Arg Ala Lys Ala Val His Gly Leu
            100                 105                 110
Leu Thr Glu Thr Glu Val Leu Asp Val Arg Asp Val Glu Ile Thr Ala
        115                 120                 125
Glu His Val Asp Leu Leu Arg Val Gly Ala Arg Asn Met Gln Asn Phe
    130                 135                 140
Val Leu Leu Asp Glu Val Gly Gln Ser His Arg Pro Val Ile Leu Lys
145                 150                 155                 160
Arg Asn Pro Ser Ala Thr Ile Ser Glu Trp Leu Ser Ala Ala Glu Tyr
                165                 170                 175
Leu Leu Gln His Ala Ser Cys Pro Gly Val Ile Leu Cys Glu Arg Gly
            180                 185                 190
Ile Arg Thr Phe Glu Thr Thr Thr Arg Tyr Thr Leu Asp Leu Asn Thr
        195                 200                 205
Val Ala Trp Ile Lys Lys Glu Thr Ser Leu Pro Val Ile Val Asp Pro
    210                 215                 220
Ser His Ala Ser Gly Arg Arg Asp Leu Val Leu Pro Leu Ala Arg Ala
225                 230                 235                 240
Ala Ile Ala Leu Gly Ala Asp Gly Leu Met Ile Glu Val His Glu His
                245                 250                 255
Pro Glu Leu Ala Leu Cys Asp Gly Ser Gln His Ile Leu Pro Cys Glu
            260                 265                 270
Leu Glu Glu Leu Gly Leu Trp Val Gln Glu Ile Gly Ser Leu Glu Thr
        275                 280                 285
Gly Ala Val Phe Val
    290
<210>42
<211>259
<212>PRT
<213>Chlamydia trachomatis
<400>42
Val Ser Met Cys Ile Lys Arg Lys Lys Thr Trp Ile Ala Phe Leu Ala
  1                 5                  10                  15
Val Val Cys Ser Phe Cys Leu Thr Gly Cys Leu Lys Glu Gly Gly Asp
            20                  25                  30
Ser Asn Ser Glu Lys Phe Ile Val Gly Thr Asn Ala Thr Tyr Pro Pro
        35                  40                  45
Phe Glu Phe Val Asp Lys Arg Gly Glu Val Val Gly Phe Asp Ile Asp
    50                  55                  60
Leu Ala Arg Glu Ile Ser Asn Lys Leu Gly Lys Thr Leu Asp Val Arg
65                  70                  75                  80
Glu Phe Ser Phe Asp Ala Leu Ile Leu Asn Leu Lys Gln His Arg Ile
                85                  90                  95
Asp Ala Val Ile Thr Gly Met Ser Ile Thr Pro Ser Arg Leu Lys Glu
            100                 105                 110
Ile Leu Met Ile Pro Tyr Tyr Gly Glu Glu Ile Lys His Leu Val Leu
        115                 120                 125
Val Phe Lys Gly Glu Asn Lys His Pro Leu Pro Leu Thr Gln Tyr Arg
    130                 135                 140
Ser Val Ala Val Gln Thr Gly Thr Tyr Gln Glu Ala Tyr Leu Gln Ser
145                 150                 155                 160
Leu Ser Glu Val His Ile Arg Ser Phe Asp Ser Thr Leu Glu Val Leu
                165                 170                 175
Met Glu Val Met His Gly Lys Ser Pro Val Ala Val Leu Glu Pro Ser
            180                 185                 190
Ile Ala Gln Val Val Leu Lys Asp Ser Pro Ala Leu Ser Thr Ala Thr
        195                 200                 205
Ile Asp Leu Pro Glu Asp Gln Trp Val Leu Gly Tyr Gly Ile Gly Val
    210                 215                 220
```

```
Ala Ser Asp Arg Pro Ala Leu Ala Leu Glu Ile Glu Ala Ala Val Gln
225                 230                 235                 240
Glu Ile Arg Lys Glu Gly Val Leu Ala Glu Leu Glu Gln Lys Trp Gly
                245                 250                 255
Leu Asn Asn
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<210>43
<211>278
<212>PRT
<213>Chlamydia trachomatis
<400>43

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Thr Thr Asn Phe Arg Lys Arg Leu Arg Gly Leu Ile Met Glu Glu Thr
  1               5                  10                  15
Ser Cys Ser Gly Lys Ile Val Phe Leu Gly Thr Gly Asp Pro Glu Gly
            20                  25                  30
Ile Pro Val Pro Phe Cys Ser Cys Glu Val Cys Ser Gln Gly Arg Ile
        35                  40                  45
Cys Arg Leu Arg Ser Ser Val Trp Val Gln Ser Gln Gly Lys Asn Phe
    50                  55                  60
Ile Ile Asp Thr Gly Pro Asp Leu Arg Thr Gln Leu Leu Arg Tyr Arg
65                  70                  75                  80
Val Pro Arg Leu Asp Gly Val Phe Leu Thr His Pro His Tyr Asp His
                85                  90                  95
Ile Gly Gly Ile Asp Asp Leu Arg Ser Trp Tyr Ile Thr His Leu Glu
            100                 105                 110
Ser Val Pro Ile Ile Leu Ser Ser Phe Thr Tyr Asp Tyr Leu Cys Lys
        115                 120                 125
Thr Lys Glu His Leu Val Gln Lys Glu Thr Pro Asn Asn Ser Leu Ala
    130                 135                 140
Ala Ser Leu Arg Tyr Thr Ile Leu Asn Glu Lys Cys Gly Glu Gln Glu
145                 150                 155                 160
Phe Leu Gly Ile Pro Phe Thr Tyr Val Ser Tyr Phe Gln Lys Asn Cys
                165                 170                 175
Gln Val Thr Gly Tyr Arg Phe Gly Asp Leu Ala Tyr Leu Thr Asp Met
            180                 185                 190
Ser His Tyr Asp Glu Gln Ile Val Asp Tyr Leu Gln Gly Val Asn Thr
        195                 200                 205
Ile Ile Val Ser Ala Ser Leu Gly Val Leu Pro Lys Ala Phe Gly Ser
    210                 215                 220
Arg Thr Pro Ser His Leu Thr Leu Glu Gln Ala Asp Leu Leu Met Glu
225                 230                 235                 240
Lys Val Gly Ala Ser Arg Leu Val Ile Thr His Val Ser His Tyr Leu
                245                 250                 255
His Lys Val Leu Glu Lys Asp Val Thr Arg Glu Cys Ala Tyr Asp Gly
            260                 265                 270
Met Glu Leu Leu Trp Thr
        275
```

<210>44
<211>416
<212>PRT
<213>Chlamydia trachomatis
<400>44

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Gly Arg Lys Glu Met Lys Lys Asp Asn Arg Asp Gly Lys Lys Glu Arg
  1               5                  10                  15
Gln Ser Ala Ile Gly Trp Arg Phe Leu Leu Pro Arg Glu Glu Gln Asp
            20                  25                  30
Pro Ala Gln Ala Leu Ala Val Cys Cys Tyr Thr Asn Arg Ala Glu Gln
        35                  40                  45
Asp Arg Val Ser Glu Tyr Val Glu Glu Leu Ile Ser Leu Ala Asn Ser
    50                  55                  60
Cys Asp Leu Ser Val Leu Glu Thr Cys Thr Trp Leu Leu Arg Ala Pro
```

```
 65                  70                  75                  80
Ser Ser Ser Phe Tyr Leu Asn Glu Gly Lys Leu Glu Glu Ile Glu Arg
                85                  90                  95
Ile Leu Glu Glu Phe Pro Thr Ile Gly Thr Leu Leu Ile Asp Glu Glu
            100                 105                 110
Ile Ser Pro Ser Gln Gln Arg Asn Leu Glu Lys Arg Leu Arg Val Val
        115                 120                 125
Val Leu Asp Arg Thr Glu Leu Ile Leu Glu Ile Phe Ala Ser Arg Ala
    130                 135                 140
Leu Thr Ala Glu Ala Gly Leu Gln Val Glu Leu Ala Gln Ala Arg Tyr
145                 150                 155                 160
Leu Leu Pro Arg Leu Lys Arg Met Trp Gly His Leu Ser Arg Gln Lys
                165                 170                 175
Ser Gly Gly Ser Gly Gly Gly Phe Val Lys Gly Glu Gly Glu Lys Gln
            180                 185                 190
Ile Glu Leu Asp Arg Arg Ile Val Arg Glu Arg Ile His Lys Leu Ser
        195                 200                 205
Arg Asp Leu Lys Asn Val Glu Arg Gln Arg Glu Glu Arg Arg Lys Ala
    210                 215                 220
Lys Lys Arg Asn Gln Ile Pro Thr Phe Ala Leu Ile Gly Tyr Thr Asn
225                 230                 235                 240
Ser Gly Lys Ser Thr Leu Leu Asn Leu Leu Thr Ser Ala Asp Thr Tyr
                245                 250                 255
Ala Glu Asn Lys Leu Phe Ala Thr Leu Asp Pro Lys Thr Arg Arg Cys
            260                 265                 270
Val Leu Pro Cys Gly Gln Arg Val Leu Leu Thr Asp Thr Val Gly Phe
        275                 280                 285
Ile Arg Lys Leu Pro His Thr Leu Val Ala Ala Phe Lys Ser Thr Leu
    290                 295                 300
Glu Ala Ala Leu Gln Glu Asp Ile Leu Leu His Val Val Asp Ala Ser
305                 310                 315                 320
His Pro Leu Ala Leu Glu His Val Glu Ile Thr Lys Ala Xaa Leu Gln
                325                 330                 335
Glu Leu Gly Ile Thr Gln Pro Gln Val Ile Thr Val Leu Asn Lys Met
            340                 345                 350
Asp Lys Val Ala Asp Gly Val Thr Ala Ser Arg Leu Arg Leu Met Ser
        355                 360                 365
Pro Asn Pro Val Cys Val Ser Ala Lys Thr Gly Glu Gly Ile Arg Glu
    370                 375                 380
Leu Phe Thr Leu His Gly Gly His Gly Thr Arg Gly Val Ser Ser Ser
385                 390                 395                 400
Asp Phe Thr Ser Ser Leu Gln Gly Ile Arg Ile Val Tyr Arg Ile Val
                405                 410                 415
```

<210>45
<211>314
<212>PRT
<213>Chlamydia trachomatis
<400>45

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Tyr Lys Xaa Lys Glu Arg Arg Ser Leu Val Ser His Phe Leu Lys Arg
  1               5                  10                  15
Arg Ile Met Met Gly Lys Gly Phe Leu Asp Cys Glu Ser Leu Val Ala
            20                  25                  30
Leu Gln Glu Met Ala Leu His Pro Ile Asp Leu Thr Ala Ser Gly Cys
        35                  40                  45
Leu Ser Glu Glu Arg Ile Gln Lys Asn Ser Leu Ser Val Glu Gly Phe
    50                  55                  60
Thr Tyr Ser Tyr Ala Thr Glu Arg Val Asp Asp Arg Cys Leu Glu Ala
65                  70                  75                  80
Leu Gln Gly Leu Thr Glu Glu Arg Glu Leu Ile Lys Gln Met Glu Cys
                85                  90                  95
Met Gln Gln Gly Ala Ile Met Asn Arg Ile Glu Gly Phe Gln Ser Glu
```

```
            100                 105                 110
Ser Arg Pro Val Leu His Thr Ala Thr Arg Ala Trp Val Arg Asp Gln
        115                 120                 125
Asp Leu His Glu Glu Ala Ala Ala Ile Ala Arg His Ser Lys Glu Glu
    130                 135                 140
Ala Leu Arg Leu Ala Glu Phe Leu Tyr Ile Ala Arg Ala Lys Phe Ser
145                 150                 155                 160
Thr Leu Val Gln Ile Gly Ile Gly Gly Ser Glu Leu Gly Pro Lys Ala
                165                 170                 175
Met Tyr Phe Ala Met Gln Gly Ser Cys Pro Ser Asp Lys Arg Ile Phe
            180                 185                 190
Phe Val Ser Asn Ile Asp Pro Asp Asn Ala Ala Glu Val Leu Arg Glu
        195                 200                 205
Ile Asp Leu Glu Gln Thr Leu Val Val Val Val Ser Lys Ser Gly Thr
    210                 215                 220
Thr Leu Glu Pro Ala Ala Asn Glu Glu Leu Phe Arg Gln Ala Tyr Gln
225                 230                 235                 240
Asn Lys Gly Leu Ser Ile Ala Glu His Phe Val Ala Val Thr Ser Gln
                245                 250                 255
Gly Ser Pro Met Asp Asp Lys Ser Arg Tyr Leu Glu Val Phe His Leu
            260                 265                 270
Trp Asp Ser Ile Gly Gly Arg Phe Ser Ala Thr Ser Met Val Gly Gly
        275                 280                 285
Val Val Leu Gly Phe Ala Phe Gly Tyr Glu Ala Phe Ile Glu Phe Phe
    290                 295                 300
Lys Glu Gln Leu Leu Ser Met Leu Met Arg
305                 310
<210>46
<211>268
<212>PRT
<213>Chlamydia trachomatis
<400>46
Tyr Trp Arg Lys Ile Phe Ser Tyr Ile His Gly Arg Arg Ser Cys Ile
  1                 5                  10                  15
Arg Phe Cys Phe Arg Leu Arg Ser Phe Tyr Arg Val Phe Gln Gly Ala
             20                  25                  30
Ala Ala Ile Asp Ala His Ala Leu Thr Pro Lys Met Arg Glu Asn Leu
         35                  40                  45
Pro Leu Leu Ser Ala Met Leu Gly Val Trp Asn Arg Asn Leu Leu Gly
     50                  55                  60
Tyr Pro Thr Thr Ala Val Ile Pro Tyr Ser Thr Gly Xaa Lys Tyr Phe
 65                  70                  75                  80
Thr Ala His Leu Gln Gln Cys Gly Met Glu Ser Asn Gly Lys Ser Ile
                 85                  90                  95
Ser Arg Glu Gly Lys Glu Ile Ser Phe Arg Thr Ser Pro Ile Ile Trp
            100                 105                 110
Gly Asp Val Gly Thr Asn Cys Gln His Ser Phe Phe Gln Ser Leu His
        115                 120                 125
Gln Gly Thr Asp Ile Val Pro Val Glu Phe Ile Gly Phe Leu His Asn
    130                 135                 140
Gln Arg Gly Leu Asp Cys Val Leu Ser Gly Ser Ser Ser Ser Gln Lys
145                 150                 155                 160
Leu Phe Ala Asn Leu Val Ala Gln Ser Leu Ala Leu Ala Gln Gly Arg
                165                 170                 175
Asp Asn Ala Asn Pro Asn Lys Arg Phe Lys Gly Asn Ser Pro Ser Ser
            180                 185                 190
Ile Leu Val Ala Gln Gln Leu Ser Pro Arg Ile Ala Gly Ser Leu Leu
        195                 200                 205
Ala Phe Tyr Glu His Lys Phe Ala Phe Gln Gly Phe Cys Trp Gly Ile
    210                 215                 220
Asn Ser Phe Asp Gln Glu Gly Val Ser Leu Gly Lys Glu Leu Ala Thr
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225 230 235 240
Gln Ile Ile Gly Ile Met Ser Gly Asn Ala Pro Val Glu Phe Pro Glu
245 250 255
Ala Arg Gly Val Leu Arg Leu Phe Asn Val Leu Thr
260 265

<210>47
<211>339
<212>PRT
<213>Chlamydia trachomatis
<400>47
Glu Tyr Val Arg Phe Val Lys Val Lys Arg Gly Trp Leu Met Val Ser
1 5 10 15
Gln Thr Val Ser Val Ala Val Thr Gly Gly Thr Gly Gln Ile Ala Tyr
20 25 30
Ser Phe Leu Phe Ser Leu Ala His Gly Asp Val Phe Gly Leu Asp Cys
35 40 45
Gly Ile Asp Leu Arg Ile Tyr Asp Ile Pro Gly Thr Glu Arg Ala Leu
50 55 60
Ser Gly Val Arg Met Glu Leu Asp Asp Gly Ala Phe Pro Leu Leu Gln
65 70 75 80
Arg Val Gln Val Thr Thr Ser Leu His Asp Ala Phe Asp Gly Ile Asp
85 90 95
Ala Ala Phe Leu Ile Gly Ser Val Pro Arg Gly Pro Gly Met Glu Arg
100 105 110
Arg Asp Leu Leu Lys Lys Asn Gly Glu Ile Val Ala Thr Gln Gly Lys
115 120 125
Ala Leu Asn Thr Thr Ala Lys Arg Asp Ala Lys Ile Phe Val Val Gly
130 135 140
Asn Pro Val Asn Thr Asn Cys Trp Ile Ala Met Asn His Ala Pro Arg
145 150 155 160
Leu Leu Arg Lys Asn Phe His Ala Met Leu Arg Leu Asp Gln Asn Arg
165 170 175
Met His Ser Met Leu Ser His Arg Ala Glu Val Pro Leu Ser Ala Val
180 185 190
Ser Gln Val Val Val Trp Gly Asn His Ser Ala Lys Gln Val Pro Asp
195 200 205
Phe Thr Gln Ala Leu Ile Asn Asp Arg Pro Ile Ala Glu Thr Ile Ala
210 215 220
Asp Arg Asp Trp Leu Glu Asn Ile Met Val Pro Ser Val Gln Ser Arg
225 230 235 240
Gly Ser Ala Val Ile Glu Ala Arg Gly Lys Ser Ser Ala Ala Ser Ala
245 250 255
Ala Arg Ala Leu Ala Glu Ala Ala Arg Ser Ile Tyr Gln Pro Lys Glu
260 265 270
Gly Glu Trp Phe Ser Ser Gly Val Cys Ser Asp His Asn Pro Tyr Gly
275 280 285
Leu Pro Glu Asp Leu Ile Phe Gly Phe Pro Cys Arg Met Leu Ala Thr
290 295 300
Gly Glu Tyr Glu Val Ile Pro Gly Leu Pro Trp Asp Ala Phe Ile Arg
305 310 315 320
Gly Lys Met Gln Ile Ser Leu Asp Glu Ile Leu Gln Glu Lys Ala Ser
325 330 335
Val Ser Leu

<210>48
<211>266
<212>PRT
<213>Chlamydia trachomatis
<400>48
His Pro Met Gly Ser Ser Val Leu Gln Pro Leu Arg Asn Arg Pro Leu
1 5 10 15

```
Phe Ser Cys Lys Glu His Arg Ser Ser Pro Met Xaa Thr Glu Trp Trp
            20                  25                  30
Asp Lys Ala Arg Cys Glu Ile Thr Val Pro Gly Met Val Ile Ala Asp
        35                  40                  45
Gly Leu Gly Ala Leu Tyr Ile Lys His Gly Val Thr Ile Asp Asn Asp
    50                  55                  60
Lys Tyr Ile Ser Gly Leu Trp Asn Ala Cys Ala Ser Leu Gly Thr Gln
65                  70                  75                  80
Tyr Tyr Asp Glu Leu Ile Asp Asp Ile Ser Ala Ile Ala Glu Phe Tyr
                85                  90                  95
Asp His Ile Ile Val Thr Pro Gly Ala Asn Ala Asp Ile Leu Pro Glu
            100                 105                 110
Leu Lys His Leu Pro Leu Ser Lys Val Lys Gly Gln Leu Val Glu Ile
        115                 120                 125
Ala Trp Pro Ala Glu Ile Pro Met Pro Pro Phe Ser Ile Asn Gly Pro
    130                 135                 140
Lys Tyr Met Val Ala Asp Thr Thr Arg Asn Thr Cys Ile Leu Gly Ala
145                 150                 155                 160
Thr Phe Glu His Asn Gln Pro Asp Ala Thr Pro Asp Ala Gln Val Ala
                165                 170                 175
Tyr Gln Glu Ile Met Pro Pro Ile Leu Ala Leu Phe Pro Gly Leu Lys
            180                 185                 190
Asp Ala Gln Val Leu Asn Tyr Tyr Ala Gly Met Arg Ser Ser Ser Pro
        195                 200                 205
Thr His Leu Pro Met Ile Ser Arg Val Gln Glu Lys Leu Trp Tyr Leu
    210                 215                 220
Gly Gly Leu Gly Ser Lys Gly Leu Leu Tyr His Gly Leu Leu Gly Asp
225                 230                 235                 240
Met Leu Ala Gln Ala Leu Leu Arg Asp Ser Thr Ala Tyr Ile Ala Lys
                245                 250                 255
Glu Phe Leu Tyr Thr Pro Glu Gly Ala Ala
            260                 265
<210>49
<211>122
<212>PRT
<213>Chlamydia trachomatis
<400>49
Gly Ile Phe Met His Ile Ala Val Leu Gly Ala Gly Tyr Ala Gly Leu
  1                 5                  10                  15
Ser Val Thr Trp His Leu Leu Leu Tyr Thr Gln Gly Arg Ile Ser Val
            20                  25                  30
Asp Leu Phe Asp Pro Thr Pro Ile Gly Ser Gly Ala Ser Gly Leu Ser
        35                  40                  45
Ser Gly Leu Leu His Gly Phe Thr Gly Lys Lys Ala Ile Lys Pro Pro
    50                  55                  60
Leu Ala Asn Leu Gly Ile Thr Thr Thr Asp Ser Leu Ile Thr Lys Ala
65                  70                  75                  80
Ser Leu Ser Ile Gly Glu Pro Ile Val Thr Ser Asn Gly Ile Leu Arg
                85                  90                  95
Pro Ala Ala Ser Gln Glu Gln Ala Thr Ile Phe Met Gln Arg Ala Gln
            100                 105                 110
Glu Phe Pro Asp Xaa Asn Gly Val Val Gly
        115                 120
<210>50
<211>130
<212>PRT
<213>Chlamydia trachomatis
<400>50
Tyr Ile Phe Ser Ser Asn Ala Trp Asn Thr Met Leu Glu Ile Thr Gly
  1                 5                  10                  15
Val Met Val Leu Pro Ala Tyr Leu Thr Ser Ser Leu Phe Leu Val Lys
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                20                  25                  30
Phe Ser Leu Ser Lys Lys Tyr Pro Lys Gln Ala Ala Ile Lys Ala Arg
            35                  40                  45
Ile Ala Met Ile Thr Gly Leu Leu Gly Ser Leu Tyr Ser Leu Trp Leu
        50                  55                  60
Ile Tyr Ala Gly Gly Leu Gln His Leu Phe Met Val Ala Ile Leu Leu
65                  70                  75                  80
Ala Leu Gly Ile Pro Phe Tyr Val Asp Ser Gly Ile Arg His Lys Gln
                85                  90                  95
Glu Lys Thr Phe Leu Asn Arg Lys Glu Ile Leu Lys Met Thr Ile Met
            100                 105                 110
Ala Leu Ala Ala Leu Leu Ala Ile Phe Leu Phe Ser Ala Asn Lys Ile
        115                 120                 125
His Leu
    130
<210>51
<211>358
<212>PRT
<213>Chlamydia trachomatis
<400>51
Met Leu Leu Lys Lys Arg Ser Pro Thr Ser Ile Leu Gly Thr Leu Ala
  1                 5                  10                  15
Leu Thr Gly Ile Val Ile Ser Tyr Met Ile Gly Gly Gly Ile Phe Ser
            20                  25                  30
Leu Pro Gln Asn Met Ala Ala Ser Ala Ser Ala Gly Ala Val Met Leu
        35                  40                  45
Ala Trp Met Leu Ser Gly Ile Gly Ile Phe Phe Ile Ala Asn Thr Phe
    50                  55                  60
Lys Thr Leu Ser Ile Ile Arg Pro Asp Leu Lys Ala Gly Ile Tyr Thr
65                  70                  75                  80
Tyr Ser Arg Glu Gly Phe Gly Pro Tyr Val Gly Phe Thr Ile Ala Trp
                85                  90                  95
Gly Tyr Trp Leu Cys Gln Ile Phe Gly Asn Val Gly Tyr Ala Val Ile
            100                 105                 110
Thr Met Asp Ala Leu Asn Tyr Phe Phe Pro Pro Tyr Phe Ala Gly Gly
        115                 120                 125
Asn Thr Ile Pro Ala Ile Leu Leu Gly Ser Leu Leu Ile Trp Ile Phe
    130                 135                 140
Asn Tyr Ile Val Leu Arg Gly Ile Arg Gln Ala Ser Phe Val Asn Ile
145                 150                 155                 160
Ile Gly Val Val Cys Thr Leu Ile Pro Leu Leu Leu Phe Ile Leu Ile
                165                 170                 175
Thr Ala Arg Phe Phe Lys Phe Ser Ile Phe Lys Thr Asp Phe Trp Gly
            180                 185                 190
Thr Ala Pro Gln His Thr Leu Gly Ser Ile Gly Ser Gln Leu Lys Ser
        195                 200                 205
Thr Met Leu Val Thr Leu Trp Ala Phe Ile Gly Ile Glu Gly Ala Val
    210                 215                 220
Val Ile Ser Gly Arg Ala Ala Asn Pro Ser Ser Val Gly Lys Ala Thr
225                 230                 235                 240
Ile Leu Gly Phe Ser Gly Cys Leu Leu Ile Tyr Val Leu Leu Ser Leu
                245                 250                 255
Leu Pro Phe Gly Ser Leu Phe Gln Tyr Gln Leu Ala Lys Ile Ala Asp
            260                 265                 270
Pro Ser Thr Ala Gly Val Leu Asn Ile Leu Val Gly Lys Trp Gly Glu
        275                 280                 285
Val Leu Met Asn Thr Gly Leu Leu Ile Ala Val Leu Thr Ser Trp Leu
    290                 295                 300
Ser Trp Thr Ile Leu Ala Ser Glu Ile Pro Tyr Ala Ala Ala Lys Asn
305                 310                 315                 320
Gly Thr Phe Pro Glu Cys Phe Ala Ile Glu Asn Ser Lys His Ala Pro
```

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                325                 330                 335
Ser Phe Ser Leu Phe Met Thr Ser Gly Leu Met Gln Ile Thr Met Leu
            340                 345                 350
Leu Val Tyr Phe Leu Phe
        355
<210>52
<211>136
<212>PRT
<213>Chlamydia trachomatis
<400>52
Pro Phe Thr Asn Lys Lys Gly Gly Pro Met Pro Tyr Gly Thr Arg Tyr
  1               5                  10                  15
Pro Thr Leu Ala Phe His Thr Gly Gly Val Gly Glu Ser Asp Asp Gly
            20                  25                  30
Met Pro Pro Gln Pro Phe Glu Thr Phe Cys Tyr Asp Ser Ala Leu Leu
        35                  40                  45
Gln Ala Lys Ile Glu Asn Phe Asn Ile Val Pro Tyr Thr Ser Val Leu
    50                  55                  60
Pro Lys Glu Leu Phe Gly Asn Ile Leu Pro Val Asp Gln Cys Thr Lys
65                  70                  75                  80
Phe Phe Lys His Gly Ala Val Leu Glu Val Ile Met Ala Gly Arg Gly
                85                  90                  95
Ala Thr Val Thr Asp Gly Thr Gln Ala Ile Ala Thr Gly Val Gly Ile
            100                 105                 110
Cys Trp Gly Lys Asp Lys Asn Gly Glu Leu Ile Gly Gly Trp Ala Ala
        115                 120                 125
Glu Tyr Val Glu Phe Phe Pro Thr
    130                 135
<210>53
<211>481
<212>PRT
<213>Chlamydia trachomatis
<400>53
Thr Leu Ala Lys Lys Ser Phe Phe His Tyr Thr Gly Gly Lys Ala Leu
  1               5                  10                  15
Leu Glu Val Val Val Ser Phe Arg Ser Val Leu Leu Thr Ala Leu Leu
            20                  25                  30
Ser Leu Ser Phe Thr Thr Thr Met Gln Ala Ala His His His Tyr His
        35                  40                  45
Arg Tyr Thr Asp Lys Leu His Arg Gln Asn His Lys Lys Asp Leu Ile
    50                  55                  60
Ser Pro Lys Pro Thr Glu Gln Glu Ala Cys Asn Thr Pro Ser Leu Ser
65                  70                  75                  80
Lys Glu Leu Ile Pro Leu Ser Glu Gln Arg Gly Leu Leu Ser Pro Ile
                85                  90                  95
Tyr Asp Phe Ile Ser Glu Arg Leu Cys Leu His Gly Val Ser Val Arg
            100                 105                 110
Asn Leu Lys Gln Ala Leu Lys Asn Ser Ala Gly Thr Gln Ile Ala Leu
        115                 120                 125
Asp Trp Ser Ile Leu Pro Gln Trp Phe Asn Pro Arg Val Ser His Ala
    130                 135                 140
Pro Lys Leu Ser Ile Arg Asp Phe Gly Tyr Ser Ala His Gln Thr Val
145                 150                 155                 160
Thr Glu Ala Thr Pro Pro Cys Trp Gln Asn Cys Phe Asn Pro Ser Ala
                165                 170                 175
Ala Val Thr Ile Tyr Asp Ser Ser Tyr Gly Lys Gly Val Phe Gln Ile
            180                 185                 190
Ser Tyr Thr Leu Val His Tyr Trp Arg Glu Asn Ala Ala Thr Ala Gly
        195                 200                 205
Asp Ala Met Met Leu Ala Gly Ser Ile Asn Asp Tyr Pro Ser Arg Gln
    210                 215                 220
```

```
Asn Ile Phe Ser Gln Phe Thr Phe Ser Gln Asn Phe Pro Asn Glu Arg
225                 230                 235                 240
Val Ser Leu Thr Ile Gly Gln Tyr Ser Leu Tyr Ala Ile Asp Gly Thr
                245                 250                 255
Leu Tyr Asn Asn Asp Gln Gln Leu Gly Phe Ile Ser Tyr Ala Leu Ser
            260                 265                 270
Gln Asn Pro Thr Ala Thr Tyr Ser Ser Gly Ser Leu Gly Ala Tyr Leu
        275                 280                 285
Gln Val Ala Pro Thr Ala Ser Thr Ser Leu Gln Ile Gly Phe Gln Asp
    290                 295                 300
Ala Tyr Asn Ile Ser Gly Ser Ser Ile Lys Trp Ser Asn Leu Thr Lys
305                 310                 315                 320
Asn Arg Tyr Asn Phe His Gly Phe Ala Ser Trp Ala Pro Arg Cys Cys
                325                 330                 335
Leu Gly Ser Gly Gln Tyr Ser Val Leu Leu Tyr Val Thr Arg Gln Val
            340                 345                 350
Pro Glu Gln Met Glu Gln Thr Met Gly Trp Ser Val Asn Ala Ser Gln
        355                 360                 365
Tyr Ile Ser Ser Lys Leu Tyr Val Phe Gly Arg Tyr Ser Gly Val Thr
    370                 375                 380
Gly His Val Phe Pro Ile Asn Arg Thr Tyr Ser Cys Gly Met Val Ser
385                 390                 395                 400
Ala Asn Leu Phe Asn Arg Asn Pro Gln Asp Leu Phe Gly Ile Ala Cys
                405                 410                 415
Ala Phe Asn Asn Val His Leu Ser Ala Ser Pro Asn Ala Lys Arg Lys
            420                 425                 430
Tyr Glu Thr Val Ile Glu Gly Phe Ala Thr Ile Gly Cys Gly Pro Tyr
        435                 440                 445
Leu Ser Phe Ala Pro Asp Phe Gln Leu Tyr Leu Tyr Pro Ala Leu Arg
    450                 455                 460
Pro Asn Lys Gln Ser Ala Arg Val Tyr Ser Val Arg Ala Asn Leu Ala
465                 470                 475                 480
Ile

<210>54
<211>204
<212>PRT
<213>Chlamydia trachomatis
<400>54
Ser Cys Gln Pro Phe Ser Leu Phe Glu Arg Ser Ile Gln Gly Met Arg
  1                 5                  10                  15
Ala Leu Gly Thr Ser Glu Gln Glu Ala Trp Asp Thr Leu Tyr Pro Asp
             20                  25                  30
Trp Leu Ser Ile Gln Arg Gln Gly Ser Ile Lys Gln Ile Glu Thr Ala
         35                  40                  45
Ile Pro Leu Leu Ile Thr Lys Val Gln Asn Gln Asn Lys Ile Val Phe
     50                  55                  60
Ala Tyr Ser Glu Arg Lys Val Cys Ala Gln Asp Val Thr Leu Glu Gln
 65                  70                  75                  80
Leu Ala Lys Ile Asn Leu Ser Phe Glu Lys Ala Asn Leu Pro Tyr Thr
                 85                  90                  95
Ser Leu Pro Ser Asn Ile Cys Phe Thr Lys Gly Val Leu Phe Gly Ser
            100                 105                 110
Glu Ile His Lys Gly Pro Gly Leu Gln His Phe Leu Asp Ala Gln Pro
        115                 120                 125
Ser Leu Pro Glu Lys Val Ile Tyr Ile Asp Asn Glu Lys Tyr Asn Val
    130                 135                 140
Leu Arg Ile Gly Glu Val Cys Lys Gln Lys Asn Ile Pro Tyr Leu Gly
145                 150                 155                 160
Ile Val Tyr Thr Ala Ser Lys Tyr His Pro Pro Ile Tyr Leu Pro Asp
                165                 170                 175
```

Ile Ala Arg Ile Gln Tyr Leu Tyr Arg Gln Lys Leu Ile Ser Asn Glu
180 185 190
Ala Ala Ala Leu Leu Ser Arg His Arg Leu Asp Lys
195 200

<210>55
<211>505
<212>PRT
<213>Chlamydia trachomatis
<400>55

Gln Leu Leu Leu Met Asp Asp Phe Ala Lys Leu Tyr Leu Asn Thr Phe
1 5 10 15
Leu Gln Lys Ser Trp Arg Lys Asn Ser Met Leu Cys Thr Thr Ile Ser
20 25 30
Gly Pro Ser Phe Leu Glu Ala Lys Lys Gln Ile Leu Arg Ser Leu Lys
35 40 45
Glu Cys His Cys Phe Glu Met Arg Val Asp Leu Leu Ser Val Ser Cys
50 55 60
Leu Glu Leu Lys Lys Leu Met Glu Leu Ala Pro Ile Ser Ile Leu Ala
65 70 75 80
Trp Lys Lys Pro Glu Ser Cys Ser Gln Ala Asp Trp Ile Asp Lys Met
85 90 95
Gln Ser Leu Ala Glu Leu Asn Pro Asn Tyr Leu Asp Leu Glu Lys Asp
100 105 110
Phe Pro Glu Glu Asp Met Ile Arg Ile Arg Gln Leu His Pro Gln Ile
115 120 125
Lys Ile Ile Arg Ser Leu His Thr Ser Glu His Thr Asp Ile Ile Gln
130 135 140
Leu Tyr Ala His Met Arg Ser Ser Ala Ala Asp Tyr Tyr Lys Phe Ala
145 150 155 160
Val Ser Ser Ser Ser Thr Thr Asp Leu Leu Asp Ile Cys His Gln Lys
165 170 175
Arg Ser Leu Pro Glu Asn Thr Thr Val Val Cys Leu Gly Gly Met Gly
180 185 190
Arg Pro Ser Arg Ile Leu Ser Pro Ile Leu Gln Asn Pro Phe Thr Tyr
195 200 205
Ala Arg Ser Thr Gly Ser Ser Pro Val Ala Pro Gly Gln Phe Ser Leu
210 215 220
Lys His His Tyr Phe Tyr Asn Phe Ala Ser Leu Ser Ala Gln Ser Pro
225 230 235 240
Ile Cys Ala Leu Ile Gly Asp Thr Ser Arg Ser Ile Gly His Leu Thr
245 250 255
His Asn Pro Phe Phe Ser Gln Leu Gly Val Ala Cys Pro Tyr Ile Lys
260 265 270
Leu Pro Leu Thr Pro Gln Glu Leu Pro Lys Phe Phe Ser Thr Ile Arg
275 280 285
Thr Gln Pro Phe Leu Gly Val Ser Val Thr Ser Pro Leu Lys Thr Ala
290 295 300
Val Leu Pro Phe Leu Asp Lys Gln Ala Pro Ser Val Lys Ala Ser Gly
305 310 315 320
Ser Cys Asn Thr Leu Val Ile Arg Gln Gly Glu Ile Glu Gly His Asp
325 330 335
Thr Asp Gly Glu Gly Leu Phe Ser Val Leu Met Gln His Gln Ile Pro
340 345 350
Leu Asn Asn Gln Arg Val Ala Ile Ile Gly Ala Gly Gly Ala Ala Gln
355 360 365
Ser Ile Ala Thr Arg Leu Ser Arg Ala Asn Cys Glu Leu Leu Ile Phe
370 375 380
Asn Arg Thr Lys Ala His Ala Glu Asp Leu Ala Ser Arg Cys Gln Ala
385 390 395 400
Lys Ala Phe Ser Leu Glu Glu Leu Pro Leu His Arg Val Ser Leu Ile
405 410 415

```
Ile Asn Cys Leu Pro Pro Ser Pro Ser Cys Thr Ile Pro Lys Ala Val
            420                 425                 430
Ala Pro Cys Val Val Asp Ile Asn Thr Ile Pro Lys His Ser Ala Phe
        435                 440                 445
Thr Gln Tyr Ala Arg Ser Gln Gly Ser Ser Ile Ile Tyr Gly His Glu
    450                 455                 460
Met Phe Thr Gln Gln Ala Leu Leu Gln Phe Arg Leu Trp Phe Pro Thr
465                 470                 475                 480
Leu Ser Phe Lys His Leu Glu Lys Thr Phe Ile Arg Arg Ala Ala Val
                485                 490                 495
Leu Ala Ser Leu Phe Ser Ile Ala Pro
            500                 505
<210>56
<211>379
<212>PRT
<213>Chlamydia trachomatis
<400>56
Thr Ser Leu Tyr Pro Ile Met Ile Glu Leu Val Thr Asp Ser Pro His
  1                 5                  10                  15
Pro Ile His Leu Val Asp Ser Leu Gln Asn Pro Lys Leu Phe Ala Ser
             20                  25                  30
Leu Ser Thr Asp Phe Pro Leu Ile Phe Ile Thr Asn Thr Lys Leu Asn
         35                  40                  45
Thr Leu Ile Leu Pro Pro Leu Leu Asp Leu Ala Arg Ser Leu Gly Phe
     50                  55                  60
Ser Val Glu Thr Leu Thr Ile Pro Glu Gly Glu Glu Thr Lys Thr Gly
 65                  70                  75                  80
Asp Thr Phe Leu Ser Leu His Gln Gln Leu Thr Asp Leu Asn Val Pro
                 85                  90                  95
Arg Gln Ala Thr Leu Ile Gly Val Gly Gly Gly Val Ile Leu Asp Ile
            100                 105                 110
Ala Gly Phe Val Ala Ala Thr His Cys Arg Gly Met Pro Phe Ile Ala
        115                 120                 125
Ile Pro Thr Thr Leu Val Ala Met Ile Asp Ala Ser Ile Gly Gly Lys
    130                 135                 140
Asn Gly Ile Asn Leu Asn His Ile Lys Asn Arg Ile Gly Ser Phe Tyr
145                 150                 155                 160
Leu Pro Lys Ala Val Trp Ile Cys Pro Arg Lys Leu Ser Phe Leu Pro
                165                 170                 175
Gln Gln Glu Leu His His Gly Ile Ala Glu Cys Ile Lys His Ala Tyr
            180                 185                 190
Ile Ala Asp Ser Ala Ile Leu Pro Leu Leu Gln Asp Pro Asn Ala Leu
        195                 200                 205
Lys Lys Glu Asp Lys Leu Ser Leu Leu Ile Lys Lys Asn Cys Leu Cys
    210                 215                 220
Lys Ala Ser Val Val Gln Gln Asp Val Arg Asp Tyr Ala Lys Arg Gln
225                 230                 235                 240
Ile Leu Asn Phe Gly His Thr Leu Gly His Ala Leu Glu Met Leu Phe
                245                 250                 255
Ile Gly Lys Ile Pro His Ser Cys Ala Ile Ser Val Gly Met Val Leu
            260                 265                 270
Glu Thr Lys Leu Ser Leu Ser Leu Gly Val Ala Arg Ser Pro Ala Ile
        275                 280                 285
Leu His Ser Leu Ile Gln Asp Leu Leu Arg Tyr Gln Leu Pro Val Ser
    290                 295                 300
Leu Lys Asp Leu Tyr Met Arg Ala Gln Ile Pro Pro His Asn Cys Asp
305                 310                 315                 320
Gln Ile Leu Ser Ala Leu Thr Tyr Asp Lys Lys Lys Gln Asn Thr Pro
                325                 330                 335
Leu Pro Pro Phe Val Met Ile Glu Glu Ile Gly Leu Ala Ala Ser Phe
            340                 345                 350
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Asp Gly Arg Phe Cys Gln Thr Ile Ser Lys His Ile Leu Thr Lys Val
        355                 360                 365
Leu Glu Glu Glu Phe Tyr Ala Met His Asn Asn
    370                 375
<210>57
<211>357
<212>PRT
<213>Chlamydia trachomatis
<400>57
Met His Asn Gln Tyr Gly Ser Ile Phe Ser Ile Thr Thr Trp Gly Glu
  1               5                  10                  15
Ser His Gly Pro Ala Ile Gly Val Val Ile Asp Gly Cys Pro Ala Gly
            20                  25                  30
Leu Ser Leu Ser Pro Glu Asp Phe Leu Pro Ala Met Ala Arg Arg Arg
        35                  40                  45
Pro Gly Gln Leu His Thr Ser Pro Arg Gln Glu Pro Asp Leu Val Thr
    50                  55                  60
Ile Leu Ser Gly Val Tyr Gln Asn Lys Thr Thr Gly Thr Pro Ile Ser
65                  70                  75                  80
Leu Leu Ile Glu Asn Lys Asp Val Ser Ser Ser Ser Tyr Glu His Leu
                85                  90                  95
Gln His Cys Tyr Arg Pro Gly His Ala Gln Phe Ala Tyr Glu Gly Lys
            100                 105                 110
Tyr Gly Phe Ala Asp Asn Arg Gly Gly Gly Arg Ala Ser Ala Arg Glu
        115                 120                 125
Thr Ala Ser Arg Val Ala Ala Gly Val Ile Ala Lys Lys Ile Leu Leu
    130                 135                 140
Ser Gln Gly Ile Glu Thr Leu Ala Phe Leu Ser Gly Phe Gly Thr Leu
145                 150                 155                 160
Glu Ser Lys Asn Tyr Pro Lys Leu Ser Asp Ser Leu Ile Gln Gln Val
                165                 170                 175
His Thr Ser Pro Phe Tyr Thr Leu Leu Pro Gln Glu Glu Ile Gln Asn
            180                 185                 190
Leu Leu Leu Leu Asn Pro Asp Asp Ser Phe Gly Gly Val Val Ser Phe
        195                 200                 205
Ile Thr Ser Pro Leu Pro Ile Gly Leu Gly Glu Pro Val Phe Gly Lys
    210                 215                 220
Leu Pro Ala Leu Leu Ala Ala Gly Met Met Ser Ile Pro Ala Ala Lys
225                 230                 235                 240
Gly Phe Glu Ile Gly Ala Gly Phe Ser Ser Ser Gln Met Thr Gly Ser
                245                 250                 255
Ala Tyr Leu Asp Ala Phe Ile Ala Asp Glu Ser Gly Val Ser Leu Gln
            260                 265                 270
Ser Asn Arg Cys Gly Gly Ala Leu Gly Gly Ile Ser Ile Gly Gln Pro
        275                 280                 285
Leu Glu Gly Arg Val Ala Phe Lys Pro Thr Ser Ser Ile Lys Lys Pro
    290                 295                 300
Cys Ser Ser Val Leu Lys Asp Gly Thr Pro Ile Ala Tyr Arg Thr Pro
305                 310                 315                 320
Asn Gln Gly Arg His Asp Pro Cys Val Ala Ile Arg Ala Val Ala Val
                325                 330                 335
Val Glu Ala Met Leu Asp Leu Thr Leu Val Asp Leu Leu Leu Gln His
            340                 345                 350
Arg Cys Thr Gln Leu
        355
<210>58
<211>164
<212>PRT
<213>Chlamydia trachomatis
<400>58
Met Pro Thr Phe Asp Thr Thr Lys Gln Ile Phe Leu Cys Gly Leu Pro
```

```
  1               5                  10                  15
Ser Val Gly Lys Thr Ser Phe Gly Gln His Leu Ser Gln Phe Leu Ser
            20                  25                  30
Leu Pro Phe Phe Asp Thr Asp His Leu Leu Ser Asp Arg Phe His Gly
        35                  40                  45
Asp Ser Pro Lys Thr Ile Tyr Gln Arg Tyr Gly Glu Glu Gly Phe Cys
    50                  55                  60
Arg Glu Glu Phe Leu Ala Leu Thr Ser Val Pro Val Ile Pro Ser Ile
65                  70                  75                  80
Val Ala Leu Gly Gly Cys Thr Pro Leu Ile Glu Pro Ser Tyr Ala His
                85                  90                  95
Ile Leu Gly Arg Asn Asn Ala Leu Leu Val Leu Leu Glu Leu Pro Ile
            100                 105                 110
Ala Thr Leu Cys Gln Arg Leu Gln His Arg Ser Ile Pro Glu Arg Leu
        115                 120                 125
Ala His Ala Pro Ser Leu Glu Asp Ala Leu Ser Gln Arg Leu Asp Lys
    130                 135                 140
Leu Arg Ser Leu Thr Ile Lys Met Pro Ser Leu Tyr Glu Gln Arg Leu
145                 150                 155                 160
Pro Leu Lys Leu
```

<210>59
<211>440
<212>PRT
<213>Chlamydia trachomatis
<400>59

```
Met Val Ser Ser Asn Gln Ala Leu Leu Ile Ser Pro Ser Ile Pro Tyr
  1               5                  10                  15
Gly Glu Ile Ala Val Pro Pro Ser Lys Ser His Ser Leu Arg Ala Ile
            20                  25                  30
Leu Phe Ala Ser Leu Ser Lys Gly Thr Ser Ile Ile Glu Asn Cys Leu
        35                  40                  45
Phe Ser Pro Asp Ser Gln Thr Met Leu Thr Ala Cys Glu Lys Met Gly
    50                  55                  60
Ala His Val Arg Arg Ile Gly Asp Ser Leu His Ile Gln Gly Asn Pro
65                  70                  75                  80
Asp Pro His His Cys His Pro Pro Tyr Phe His Met Gly Asn Ser Gly
                85                  90                  95
Ile Ala Leu Arg Phe Leu Thr Ala Leu Ser Thr Leu Ser Pro Thr Pro
            100                 105                 110
Thr Leu Ile Thr Gly Ser His Thr Leu Lys Arg Arg Pro Ile Ala Pro
        115                 120                 125
Leu Leu Ser Ser Leu Lys Gln Leu Gly Ala His Ile Arg Gln Lys Thr
    130                 135                 140
Ser Ser Ser Ile Pro Phe Thr Ile His Gly Pro Leu Ser Pro Gly His
145                 150                 155                 160
Val Thr Ile Ser Gly Gln Asp Ser Gln Tyr Ala Ser Ala Leu Ala Ile
                165                 170                 175
Thr Ala Ala Leu Ala Pro Tyr Pro Leu Ser Phe Ser Ile Glu Asn Leu
            180                 185                 190
Lys Glu Arg Pro Trp Phe Asp Leu Thr Leu Asp Trp Leu His Ser Leu
        195                 200                 205
Asn Ile Ser Phe Leu Arg Asp Gln Asp Ser Leu Thr Phe Pro Gly Gly
    210                 215                 220
Gln Ser Leu Glu Ser Phe Ser Tyr Ser Val Pro Gly Asp Tyr Ser Ser
225                 230                 235                 240
Ala Ala Phe Leu Ala Ser Phe Gly Leu Leu Ser Ser Ser Ser Lys Pro
                245                 250                 255
Thr Ile Leu Arg Asn Leu Pro Ser Gln Asp Ser Gln Gly Asp Lys Leu
            260                 265                 270
Leu Phe Ser Leu Leu Lys Gln Leu Gly Ala His Ile Leu Ile Glu Lys
```

```
        275                 280                 285
His His Ile Glu Met His Pro Ser Ser Phe Ser Gly Gly Glu Ile Asp
    290                 295                 300
Met Asp Pro Phe Ile Asp Ala Leu Pro Ile Leu Ala Val Leu Cys Cys
305                 310                 315                 320
Phe Ala Lys Asn Pro Ser Arg Leu Tyr Asn Ala Leu Gly Ala Lys Asp
                325                 330                 335
Lys Glu Ser Asn Arg Ile Glu Ala Ile Ala His Glu Leu Gln Lys Met
            340                 345                 350
Gly Gly Ser Val His Pro Thr Arg Asp Gly Leu Tyr Ile Glu Pro Ser
        355                 360                 365
Arg Leu His Gly Ala Val Val Asp Ser His Asn Asp His Arg Ile Ala
    370                 375                 380
Met Ala Leu Ala Val Ala Gly Val His Ala Ser Ser Gly Gln Thr Leu
385                 390                 395                 400
Leu Cys Asn Thr Gln Cys Ile Asn Lys Ser Phe Pro His Phe Val Ile
                405                 410                 415
Ala Ala Gln Thr Leu His Ala Asn Val Arg His Tyr Gln Ala Asp Phe
            420                 425                 430
Pro Leu Arg Ser Ser Phe Cys Arg
        435                 440
<210>60
<211>142
<212>PRT
<213>Chlamydia trachomatis
<400>60
Glu Lys Leu Ser Asn Asp Cys Pro Pro Gly Lys Val Lys Glu Ser Trp
  1                 5                  10                  15
Ser Leu Lys Lys Glu Met Phe Lys Glu Cys Ser Gln Ser Lys Val Arg
            20                  25                  30
Ser Asn Gln Gly Arg Ser Leu Arg Phe Ser Ile Glu Lys Glu Arg Gly
        35                  40                  45
Tyr Gly Ala Lys Ala Ala Val Ile Ala Asn Ala Asp Ala Tyr Trp Glu
    50                  55                  60
Ser Cys Pro Glu Ile Val Thr Trp Pro Gly Asp Asn Gly Pro Trp Met
65                  70                  75                  80
Val Lys Gly Ile Glu Glu Asp Val Phe Trp Arg Met Cys Ala Pro Ser
                85                  90                  95
Cys Phe Lys Leu Asp Arg Arg Gly Ala Ile Gly Arg Arg Leu Ser Val
            100                 105                 110
Trp Asp Pro Val Ile Lys Val Gly Val Gly Asp Lys Val Glu Arg Ala
        115                 120                 125
Val Arg Asn Arg Arg Ala Ile Pro Glu Phe Pro Ile Trp Lys
    130                 135                 140
<210>61
<211>463
<212>PRT
<213>Chlamydia trachomatis
<400>61
Asp Arg Ser Cys Ser Glu Asn Asp Ile Gln Thr Glu Gly Lys Glu Arg
  1                 5                  10                  15
Thr Leu Leu Gly Ala Gly Leu Thr Gly Ala Gly Leu Val Leu Lys Leu
            20                  25                  30
Gly Ser Ser Tyr Ile Pro Gly Gly Tyr Gly Ser Ala Leu Gly Lys Leu
        35                  40                  45
Gly Asp Val Ser Tyr Asn Lys Gly Arg Gly Ala Leu Phe Ala Gly Phe
    50                  55                  60
Ala His Tyr Leu Tyr Val Arg Phe Phe Gln Ser Lys Lys Ala Ala Ser
65                  70                  75                  80
Gly Glu Ala Leu Thr Pro Glu Glu Met Leu Ile Glu Gly Ala Lys Ile
                85                  90                  95
```

```
Arg Lys Leu Ala Asn Gly Leu Val Leu Leu Gly Val Gly Phe Ala Cys
            100                 105                 110
Leu Gly Ile Ala Leu Ala Val Val Gly Thr Leu Ala Val Thr Gly Gly
        115                 120                 125
Ala Ala Thr Ala Leu Ile Val Leu Ala Pro Pro Leu Ile Ser Leu Gly
    130                 135                 140
Ile Ser Leu Val Ile Ser Asn Met Leu His Thr Thr Leu Gly Gln Trp
145                 150                 155                 160
Arg Ala Phe Ala Arg Ala Gln Gln Asp Gln Asp Leu Leu Val Asp Thr
                165                 170                 175
Lys Leu Lys Asn Ile Ser Gln Ala Asp Phe Ser Tyr Arg Val Asp Asn
            180                 185                 190
Asn Ile Glu Val Val Val Asp Pro Arg Glu Ser Asn Leu Pro Ser Ile
        195                 200                 205
Glu Arg Leu Pro Gln Gly Glu Ile Asp Ala Ala Leu Ser Leu Thr Lys
    210                 215                 220
Lys Gln Gln Arg Ile Leu Ile Leu Ser Gly Leu Leu Leu Leu Ala Gly
225                 230                 235                 240
Val Thr Cys Thr Leu Leu Ala Gly Phe Gly Gly Leu Pro Ala Val Gln
                245                 250                 255
Val Leu Leu Leu Phe Ser Ile Gly Arg Ala Val Leu Leu Ser Ala Val
            260                 265                 270
Pro Met Val Val Ser Gly Met Val His Val Ala His Gln Leu Lys Ala
        275                 280                 285
Arg Leu Gln Ile Ser Leu Ala Arg Arg Arg Glu Ala Arg Leu Lys Ala
    290                 295                 300
Arg Met Ile Arg Glu Met Asp Asn Arg Arg Trp Gly Glu Ser Arg Ala
305                 310                 315                 320
Ser Leu Leu Ser Lys Lys Glu Gln Glu Glu Thr Trp Lys Leu Val Gly
                325                 330                 335
Lys Pro Val Ile Phe Gln Thr Glu Gln Ala Ile Arg Glu Tyr Val Asn
            340                 345                 350
Gly Ala Thr Lys Glu Glu Arg Phe Gln Ser Ile Leu Val Ala Thr Ile
        355                 360                 365
Ile Leu Leu Ala Gly Leu Gly Val Leu Ser Leu Thr Leu Ile Pro Gly
    370                 375                 380
Leu Ala Pro Ile Ser Gly Gly Ile Leu Ala Ile Gly Gly Val Leu Leu
385                 390                 395                 400
Gly Ile Ser Ile Thr Met Tyr Leu Gln Arg Phe Ile Gln Trp Leu Tyr
                405                 410                 415
Glu Gln Leu Ile Lys Leu Arg Asp Tyr Ile Gln Asn Arg Gln Ser Val
            420                 425                 430
Ile Val Gln Gly Ala Ser Ala Cys Asp Phe Asp Ala Glu Asp Ile Ile
        435                 440                 445
Val Asp Leu Val Ala Asp Leu Leu Arg Ser Met Gly Ile Leu Leu
    450                 455                 460
<210>62
<211>253
<212>PRT
<213>Chlamydia trachomatis
<400>62
Met Arg Val Ala Asp Ser Ile Met Lys Lys Ser Ile Gly Leu Val Gly
  1               5                  10                  15
Asp Thr Gly Arg Met Gly Val Leu Leu Thr Gln Ala Leu Leu Cys Arg
            20                  25                  30
Pro His Cys Phe Leu Gly Lys Gly Phe Ser Arg Arg Ser Gln Thr Ser
        35                  40                  45
Leu Glu Glu Val Val Thr Glu Asn Asp Ile Leu Ile Asp Phe Ser Ser
    50                  55                  60
Pro Glu Val Thr Ser Leu Leu Leu Asp Phe Leu Leu Lys Thr Pro Arg
65                  70                  75                  80
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```
Pro Val Ile Ile Gly Thr Thr Gly Phe Thr Asn Asp Ser Gly Val Lys
                85                  90                  95
Thr Lys Leu Ser Ala Leu Ser Glu Tyr Val Pro Val Val Val Cys Ala
            100                 105                 110
Asn Thr Ser Leu Gly Ala Tyr Val Gln Lys Arg Leu Ala Ala Phe Ala
        115                 120                 125
Ala Lys Leu Phe Ser Thr Ser Tyr Asp Val Arg Ile Leu Glu Thr His
    130                 135                 140
His Arg Ala Lys Ala Asp Ala Ile Ser Gly Thr Ala Ile Ser Leu Ala
145                 150                 155                 160
Glu Ala Ile Arg Ser Ala Lys Ala Glu Ser Cys Glu Glu Glu Pro Glu
                165                 170                 175
Pro Phe Ile Glu Met His Gly Ser Arg Leu Gly Asn Val Cys Gly Glu
            180                 185                 190
His Glu Val Ser Phe Val Gly Glu Asp Glu Arg Phe Val Ile Arg His
        195                 200                 205
Glu Val Phe Ser Arg Arg Val Phe Ser Asp Gly Val Leu Leu Ile Leu
    210                 215                 220
Glu Lys Ile Met Gly Glu Gly Leu Pro Lys Gly Tyr Tyr Thr Ser Asp
225                 230                 235                 240
Val Leu Tyr Glu Ser Leu Phe Gln Glu Lys Val Phe Gly
                245                 250
```

<210>63
<211>337
<212>PRT
<213>Chlamydia trachomatis
<400>63

```
Lys Leu Arg Met Thr Met Arg Ile Ala Ile Leu Gly Ala Thr Gly Leu
  1               5                  10                  15
Val Gly Gln Lys Leu Ile Ala Leu Leu Gln Asn His Lys Gln Trp Glu
            20                  25                  30
Ile Ala Glu Leu Gly Ala Ser Ser Glu Lys His Ala Leu Arg Tyr Glu
        35                  40                  45
Ser Ala Cys Leu Trp Gln Glu Pro Leu Met Glu Met Pro Glu Ser Val
    50                  55                  60
Arg Asp Leu Ser Ile Arg Ser Val Glu Glu Ile Glu Ser Asn Ile Val
65                  70                  75                  80
Val Ser Cys Leu Pro Ser Ser Val Ala Phe Ser Ala Glu Thr Thr Cys
                85                  90                  95
Leu Ser Ser Gly Lys Ile Val Phe Ser Asn Ala Thr Ala Tyr Arg Met
            100                 105                 110
His Lys Ala Val Pro Ile Leu Ile Pro Glu Ile Asn Ser Asp His Leu
        115                 120                 125
Ser Leu Leu Glu Glu Gln Pro Phe Leu Gly Lys Ile Ile Thr Asn Ser
    130                 135                 140
Asn Cys Cys Val Ser Gly Ile Ala Leu Ala Leu Lys Pro Leu Leu Leu
145                 150                 155                 160
Phe Asn Ile Glu His Val His Val Ile Thr Leu Gln Ser Ala Ser Gly
                165                 170                 175
Ala Gly Tyr Pro Gly Val Ser Ser Leu Asp Leu Ile Gly Asn Thr Val
            180                 185                 190
Pro Tyr Ile Leu Gly Glu Glu Glu Lys Ile Leu Arg Glu Thr Val Lys
        195                 200                 205
Ile Leu Gly Gln Pro Gly Phe Pro Ala Glu Phe Ser Ile Thr Ala Ser
    210                 215                 220
Val His Arg Val Pro Val Ala His Gly His Val Ile Ser Val His Val
225                 230                 235                 240
Met Phe Asp Gln Glu Val Asp Leu Glu Glu Ile Thr Ser Cys Tyr Glu
                245                 250                 255
Lys Asp Ser Ala Thr Tyr Val Leu Tyr Asp Ser Pro Trp His Pro Gln
            260                 265                 270
```

```
Val Arg Lys Asp Leu Ala His Asp Asp Met Arg Leu His Ile Gly Pro
        275                 280                 285
Ile Ser Tyr Gly Gly Asn Thr Arg Thr Ile Lys Met Cys Ile Leu Leu
    290                 295                 300
His Asn Leu Val Arg Gly Ala Ala Gly Ala Leu Ile Ala Asn Met Asn
305                 310                 315                 320
Leu Phe Arg Asp Arg Gly Gly Phe Val His Gln Glu Arg Leu Thr Tyr
                325                 330                 335
Ala
```

<210>64
<211>432
<212>PRT
<213>Chlamydia trachomatis
<400>64

```
Arg Met Leu Arg Gln Lys Thr Ala Pro Leu Val Cys Lys Phe Gly Gly
  1                 5                  10                  15
Thr Ser Val Gly Thr Ala Gln Ser Ile Arg Arg Val Cys Glu Ile Ile
             20                  25                  30
Gln Glu Glu Arg Pro Ser Phe Val Val Val Ser Ala Val Ala Gly Val
         35                  40                  45
Thr Asp Trp Leu Glu Glu Phe Cys Arg Leu Pro Lys Gly Lys Arg Ala
     50                  55                  60
Ala Leu Thr Glu Lys Ile Arg Glu Arg His Glu Ser Ile Ala Lys Glu
 65                  70                  75                  80
Leu Gly Ile Glu Val Ser Leu Ala Ile Phe Trp Glu Ile Leu Glu His
                 85                  90                  95
Phe Glu Asp Val Glu Glu Leu Leu Ser Glu Asp Gln Ala Arg Ile Leu
            100                 105                 110
Ala Ile Gly Glu Asp Leu Ser Ser Thr Leu Ile Cys Ser Tyr Cys Cys
        115                 120                 125
Thr Tyr Val Leu Pro Leu Lys Arg Leu Glu Ala Arg Gln Val Ile Leu
    130                 135                 140
Thr Asp Ser Gln Phe Leu Arg Ala Val Pro Asp Leu Ala Leu Met Gln
145                 150                 155                 160
Thr Ala Trp Gly Glu Leu Ala Leu Gln Glu Asp Ala Ile Tyr Leu Met
                165                 170                 175
Gln Gly Phe Leu Gly Ala Thr Ser Ser Gly Lys Thr Thr Val Leu Gly
            180                 185                 190
Arg Gly Gly Ser Asp Phe Ser Ala Ser Leu Ile Gly Glu Leu Cys Lys
        195                 200                 205
Ala Arg Glu Leu Arg Ile Tyr Thr Asp Val Cys Gly Val His Thr Ala
    210                 215                 220
Asp Pro Lys Ile Leu Lys Asp Thr Gln Leu Ile Asp Ser Leu Thr Phe
225                 230                 235                 240
Glu Glu Met Gln Glu Leu Ala Ser Ser Gly Ala Lys Val Leu His Gln
                245                 250                 255
Asp Met Leu Lys Pro Cys Val Arg Ala Lys Val Pro Ile Phe Val Thr
            260                 265                 270
Ser Thr Phe Asn Val Thr Lys Glu Gly Thr Trp Ile Cys Ala Ser Leu
        275                 280                 285
Asn Glu Ser Thr Glu Gly Pro Val Ile Lys Ala Leu Ser Leu Lys Ser
    290                 295                 300
Asn Gln Ala Leu Trp Phe Val Glu Tyr Asn Ser Pro Leu Val Arg Leu
305                 310                 315                 320
Glu Asp Val Leu Gly Cys Val Arg Ser Leu Gly Phe Val Pro Gly Val
                325                 330                 335
Val Met Ala Gln Ser Leu Gly Val Tyr Phe Thr Ile Asp Trp Glu Glu
            340                 345                 350
Tyr Pro Gln Ala Ile Thr Lys Ala Leu Glu Ala Phe Gly Thr Val Ser
        355                 360                 365
```

Cys Glu Gly Pro Leu Ser Leu Val Ala Leu Val Gly Ala Lys Leu Ala
370 375 380
Ser Trp Ser Met Ser Arg Val Phe Glu Ala Leu His Arg Thr Pro Val
385 390 395 400
Leu Cys Trp Ser Gln Thr Asp Thr Val Ile Asn Leu Ile Ile Asn Lys
405 410 415
Asp Phe Gly Val Ala Val Thr Glu Leu Leu His Asp Cys Leu Phe Lys
420 425 430

<210>65
<211>286
<212>PRT
<213>Chlamydia trachomatis
<400>65
Met Ser Val Leu Gly Ala Cys Ile Thr Pro Phe Lys Ala Asp Leu Ser
1 5 10 15
Ile Asp Phe Ala Ala Leu Glu Ser Val Val Arg Ser Gln Glu His Ala
20 25 30
Gly Asn Gly Ile Ile Leu Phe Gly Ser Thr Gly Glu Gly Leu Ser Leu
35 40 45
Thr Tyr Glu Glu Lys Leu Ser Ile Leu Ser Phe Val Ser Thr Leu Asn
50 55 60
Leu Asn Val Pro Ile Phe Val Gly Val Thr Ala Thr Ser Val Gln Glu
65 70 75 80
Thr Met Ser Trp Ile Asp Phe Ala Gln Gln Trp Pro Ile Asp Gly Phe
85 90 95
Leu Val Pro Thr Pro Leu Tyr Thr Arg Pro Gly Leu Asn Gly Gln Lys
100 105 110
Ala Trp Phe Asp Arg Val Leu Ser Val Ser Arg Lys Pro Ile Ile Leu
115 120 125
Tyr Asn Asn Pro Ile Arg Thr Gly Val Ser Leu Tyr Pro Glu Val Val
130 135 140
Lys Ser Phe Val Ser His Pro Leu Cys Ile Gly Val Lys Asp Ser Gly
145 150 155 160
Gly Ser Ala Gln Ala Cys Glu Leu Phe Ala Glu Ser Gly Leu Arg Val
165 170 175
Phe Cys Gly Asp Asp Asn Leu Trp Pro Asp Met Arg Leu Ser Gly Ala
180 185 190
Ser Gly Val Ile Ser Val Leu Ala Asn Val Trp Pro Glu Leu Ala Arg
195 200 205
Asp Tyr Val Ala Leu Gly Arg Pro Ile Glu Ala Trp Lys Lys Val Cys
210 215 220
Ser Trp Leu Asn Leu Ser Thr Asn Pro Leu Gly Ile Lys Ala Leu Met
225 230 235 240
Ala Ala Gln Lys Met Ile Glu Cys Asp Ala Val Arg Pro Pro Leu Ser
245 250 255
Ile Arg Asp Leu Gln Arg Arg Asp Glu Leu Ala Asp Ile Leu Ala Cys
260 265 270
Arg Ala Thr Leu Gln Thr Glu Leu Leu Ser Val Cys Arg Gln
275 280 285

<210>66
<211>214
<212>PRT
<213>Chlamydia trachomatis
<400>66
Gly Asp Phe Thr Thr Phe Met Arg Lys Ala Phe Leu Phe Gly Ser Ile
1 5 10 15
Gly Cys Leu Cys Leu Leu Val Thr Leu Glu Ser Ser Gly Glu Gly Leu
20 25 30
Tyr Arg Gly Ser Asn Gly Arg Met Thr Phe Ile Ser Ala Val Glu Ser
35 40 45
Ala Asn Ser Gln Leu Glu Leu Glu Arg Lys Lys Glu Gln Arg Val Ile

```
     50                  55                  60
Glu Ile Leu Lys Glu Ile Cys Lys Glu Ile Gly Val Tyr Glu Ser Leu
 65                  70                  75                  80
Phe Asp Glu Val Thr Asp Ser Leu Glu Phe Cys Glu Leu Leu Lys Lys
                 85                  90                  95
Ile Leu Ala Glu Lys Asp Ser Glu Asp Phe Leu Glu Asp Val Ser Thr
            100                 105                 110
Gln Asp Ser Leu Ser Ser Asn Glu Gln Pro Ile Ser Glu Gln Thr Ile
        115                 120                 125
Gly Asp Arg Val Glu Glu Ser Ala Met Ile Ser Glu Cys Met Ile Lys
    130                 135                 140
Asp Val Leu Asn Ala Leu Gln Gln Ser Thr Glu Ser Phe Gln Arg Lys
145                 150                 155                 160
Glu Glu Glu Ala Ser Phe Leu Glu Arg Lys Asp Leu Glu Leu Arg Glu
                165                 170                 175
Arg Glu Leu Ala Phe Lys Glu Glu Arg Leu Ser Trp Glu Arg Glu Lys
            180                 185                 190
Ala Glu Lys Glu Trp Ala Trp Lys Lys Glu Gln Tyr Ile Arg Asp Leu
        195                 200                 205
Val Lys Arg Glu Gln Lys
    210
<210>67
<211>196
<212>PRT
<213>Chlamydia trachomatis
<400>67
Met Val Ala Lys Ser Ile Thr Lys Glu Tyr Ser Glu Thr Leu Ile Ser
  1                 5                  10                  15
Asn Pro Phe Val Lys Val Ile Ala Gly Ser Leu Phe Leu Ala Cys Leu
             20                  25                  30
Ala Lys Ile Ser Ile Ser Leu Pro Phe Thr Pro Val Pro Ile Thr Tyr
         35                  40                  45
Gln Thr Leu Gly Val Phe Cys Leu Gly Leu Val Met Thr Pro Gln Met
     50                  55                  60
Ala Val Thr Thr Val Val Ala Tyr Leu Leu Glu Gly Leu Phe Phe Pro
 65                  70                  75                  80
Val Phe Cys Ser Pro Met Cys Gly Ile Ala Val Phe Cys Gly Pro Thr
                 85                  90                  95
Ala Gly Tyr Leu Phe Ser Phe Val Pro Ala Val Ala Leu Ile Ser Trp
            100                 105                 110
Leu Tyr Gly Lys Xaa Gly Arg Ser Glu Ala Lys Ser Trp Asp Val Ala
        115                 120                 125
Met Ile Leu Phe Val Gly Gly Gly Val Ser Leu Cys Leu Gly Ala Leu
    130                 135                 140
Trp Leu Ala Cys Phe Leu Lys Ser Ile Gly Val Ser Asn Ser Leu Asp
145                 150                 155                 160
Leu Val Gly Ala Phe Lys Ile Gly Val Leu Pro Phe Leu Ile Gly Lys
                165                 170                 175
Ile Val Lys Ile Ala Leu Val Val Gln Gly Arg Ser Val Arg Arg Leu
            180                 185                 190
Phe Ile Arg Lys
        195
<210>68
<211>186
<212>PRT
<213>Chlamydia trachomatis
<400>68
Leu Gln Gln Arg Asn Asn Asn Lys Thr His Ser Thr Gln Arg Ser Phe
  1                 5                  10                  15
Met Ala Thr Pro Ile Ala Val Pro Pro Ser Ser Ala Ser Ser Gln Ser
             20                  25                  30
```

```
Ser Pro Asp Val Ser Pro His Ser Ser Ser Ala Ser Ala Lys Asn Ala
          35                  40                  45
Ile Tyr Asn Thr Lys Gln Gly Arg Pro Trp Pro Val Ile Val Ser Gln
      50                  55                  60
Ile Ala Leu Leu Ile Met Arg Ile Ser Ser Ile Ile Val Leu Gly Leu
 65                  70                  75                  80
Gly Ile Ala Phe Leu Ala Ser Asn Pro Met Leu Gly Trp Ser Leu Leu
                 85                  90                  95
Ile Ala Ala Ile Thr Leu Val Ile Ser Ser Leu Leu Cys Ala Ile Ala
            100                 105                 110
Ile Ser Val Tyr Gln Thr Leu Thr Ile Arg Lys Leu Gln Ser Glu Val
        115                 120                 125
Ser Ser Leu Glu Arg Gln Ser Gly Val Ile Phe Ile Glu Glu Gly Val
    130                 135                 140
Glu Asp Ala Leu Leu Ser Phe Glu Ser Pro Phe Ala Gly Leu Glu Asp
145                 150                 155                 160
Asp Leu Val Ser Pro Ile Ser Pro Pro Leu Ser Pro Glu Asp Arg Ser
                165                 170                 175
Tyr Arg Ser Ser Gly Asp Ala Ser Arg Ser
            180                 185
```

<210>69
<211>124
<212>PRT
<213>Chlamydia trachomatis
<400>69

```
Thr Glu Ile Ala Ile Ala His Asn Arg Glu Glu Ile Thr Arg Val Ile
  1               5                  10                  15
Ala Ala Ile Ser Arg Leu His Pro Asn Ile Gly Phe Asp Ala Arg Asn
             20                  25                  30
Ala Ile Pro Asn Pro Ser Thr Ile Ile Glu Glu Ile Leu Ile Ile Lys
          35                  40                  45
Arg Ala Ile Trp Leu Thr Met Thr Gly Gln Gly Leu Pro Cys Leu Val
      50                  55                  60
Leu Tyr Ile Ala Phe Leu Ala Glu Ala Glu Asp Glu Cys Gly Glu Thr
 65                  70                  75                  80
Ser Gly Glu Asp Cys Asp Asp Ala Glu Glu Gly Gly Thr Ala Ile Gly
                 85                  90                  95
Val Ala Ile Lys Asp Leu Trp Val Glu Trp Val Leu Leu Leu Phe Leu
            100                 105                 110
Cys Cys Asn Gln Leu Gly Thr Gly Val Phe Thr Gln
        115                 120
```

<210>70
<211>112
<212>PRT
<213>Chlamydia trachomatis
<400>70

```
Lys His Met Pro Val Val Gln Lys Pro Ser Val Leu Glu Tyr Ala Pro
  1               5                  10                  15
Val Ser Pro Ser Thr Thr Ser Asp Ser Lys Ile Pro Asn His Arg Ser
             20                  25                  30
Gly Ala Ser Cys Ile Lys Ile Ser Met Ile Leu Ala Cys Ser Leu Leu
          35                  40                  45
Ala Val Gly Ile Ile Leu Ala Ile Ala Leu Leu Ala Ser Pro Gly Ser
      50                  55                  60
Leu Ala Tyr Val Leu Val Ala Gly Ile Leu Ala Leu His Ala Val Leu
 65                  70                  75                  80
Ala Leu Ala Leu Gly Leu Trp Ile Ser Ser Ser Thr Lys His Ala Leu
                 85                  90                  95
Leu Ser Glu Asn Ser Gly Thr Glu Leu Ile Thr Thr Lys Lys Gln Gln
            100                 105                 110
```

<210>71

<211>641
<212>PRT
<213>Chlamydia trachomatis
<400>71

```
Leu Ile Leu Lys Leu Lys Val Tyr Leu Leu Phe Phe Leu Phe Phe Ile
  1               5                  10                  15
Met Thr Thr Asp Gln Pro Phe Thr Asn Lys Leu Ile Thr Glu Lys Ser
            20                  25                  30
Pro Tyr Leu Leu Leu Tyr Ala His Thr Pro Val Asp Trp Tyr Pro Trp
        35                  40                  45
Ser Ala Glu Ala Phe Gln Lys Ala Ser Ala Glu Asp Lys Pro Ile Phe
    50                  55                  60
Leu Ser Ile Gly Cys Thr His Ser Lys Trp Cys Gln Val Met Leu Lys
65                  70                  75                  80
Glu Asn Tyr Glu Asn Pro Glu Val Ala Ala Ile Leu Asn Lys Tyr Phe
                85                  90                  95
Val Cys Ile Lys Val Asp Lys Glu Glu Leu Pro His Leu Ala Asn Leu
            100                 105                 110
Tyr Phe Glu Leu Ser Gln Met Leu Ser Val Ser Gly Glu Val Gln Asp
        115                 120                 125
Ser Pro Thr Trp Pro Leu Asn Val Phe Leu Thr Pro Asn Leu Leu Pro
    130                 135                 140
Phe Phe Ser Leu Gly Tyr Ala Ser Phe Ala Gly Lys Met Arg Ala Ser
145                 150                 155                 160
Ser Phe Val Gln Met Leu Glu Lys Leu His Ile Met Trp Glu Asp Arg
                165                 170                 175
Glu Asp Arg Glu Val Phe Val Gln Gln Ala Glu Arg Val Leu Glu Val
            180                 185                 190
Ala Ala Phe Leu Glu Gly Cys Ser Cys Lys Lys Glu Ser Leu Glu Glu
        195                 200                 205
Glu Cys Leu Lys Arg Val Thr Glu Ala Ile Tyr Arg Asp Val Asp Ala
    210                 215                 220
Gln Phe Gly Gly Val Lys Ser Phe Pro Lys Thr Leu Pro Gly Leu Leu
225                 230                 235                 240
Ser Leu Phe Leu Leu Arg Val Gly Ala Glu Tyr Gln Asp Ser Arg Ala
                245                 250                 255
Ile Phe Phe Val Asn Arg Ser Leu Gln Ser Val Ala Asn Gly Gly Ile
            260                 265                 270
Phe Asp His Leu Ala Gly Gly Phe Phe Arg Tyr Thr Ile Asp Asp Arg
        275                 280                 285
Trp Leu Ile Pro Cys Phe Glu Lys Arg Ala Phe Asp Asn Ala Leu Met
    290                 295                 300
Met Leu Val Tyr Thr Glu Ala Gly Val Tyr Met Arg Asn Pro Glu Phe
305                 310                 315                 320
Val Ile Val Ala Lys Arg Val Leu Asn Tyr Leu Ile Lys Glu Leu Thr
                325                 330                 335
Asp Pro Lys Ser Gly Ser Phe Tyr Leu Ser Glu Tyr Gly Gln Gln Trp
            340                 345                 350
Ala Gly Thr Asp Ile Asp Ser Gln Tyr Thr Trp Ser Gly Glu Glu Ile
        355                 360                 365
Arg Ser Leu Leu Gly Glu Gln Ala Glu Met Phe Cys Glu Tyr Tyr Asp
    370                 375                 380
Val Ser Arg Glu Gly Ile Cys Asn Gly Arg Asn Ile Leu His Val Ser
385                 390                 395                 400
Pro Tyr Met Asn Arg Lys Glu Ile Glu Glu Arg Tyr His Cys Ser Leu
                405                 410                 415
Glu Glu Phe Gln Lys Lys Leu Glu Ala Ser Arg Glu Lys Leu Cys Val
            420                 425                 430
Tyr Arg Glu Gly Lys Thr Gln Ala Ser Lys Asp Asp Gln Ser Phe Thr
        435                 440                 445
Phe Gln Asn Gly Trp Gly Ile Phe Ser Leu Ile Lys Thr Gly Ile Leu
```

```
    450                 455                 460
Leu Gly Glu Pro Glu Cys Phe Val Val Ala Glu Arg Cys Gly Glu Phe
465                 470                 475                 480
Ile Ala Asn Asn Leu Tyr Lys Asn Gly Arg Leu Leu Arg Arg Trp Arg
                485                 490                 495
Gln Gly Glu Ser Lys Tyr Ser Ala Gly Leu Glu Asp Tyr Ala Ala Met
            500                 505                 510
Ile Met Gly Ala Leu Ala Leu Phe Glu Ile Gly Ser Gly Ala Lys Trp
        515                 520                 525
Leu Val Leu Ala Glu Glu Leu Ala Lys Glu Val Leu Val Ser Phe Arg
    530                 535                 540
Ala Asp Thr Gly Gly Phe Tyr Ser Thr Asp Gly Arg Asp Ser Ser Leu
545                 550                 555                 560
Leu Ile Lys Lys Ala Cys Phe Val Asp Gly Asp Ala Ile Ser Ser Asn
                565                 570                 575
Ala Leu Leu Cys Gln Gly Leu Leu Lys Leu His Ile Ile Ser Gly Lys
            580                 585                 590
Arg His Tyr Leu Thr Phe Ala Glu Asp Ile Leu Gln Cys Val Gln Gly
        595                 600                 605
Lys Trp Ala Lys His Lys Phe Ser Ser Leu Gly Ser Leu Leu Ala Ala
    610                 615                 620
Gln Glu Tyr Phe Phe Gln Thr Thr Ser Glu Asp Phe Tyr Phe Phe Arg
625                 630                 635                 640
Glu
```

09/945,745 - 09/26/2001

<210>72
<211>406
<212>PRT
<213>Chlamydia trachomatis
<400>72

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Leu Leu Pro Arg Thr Arg Val Gly Ser Phe Leu Glu Tyr Lys Leu Leu
  1                 5                  10                  15
Cys Leu Gly Val Cys His Ile Ser Arg Glu Ala Val Arg Ser Lys Glu
             20                  25                  30
Lys Gly Glu Glu Glu Gln Pro Lys Ile Leu Lys Val Phe Leu Pro Lys
         35                  40                  45
Asn Tyr Lys Ser Arg Met Arg Val Val Lys Arg Ala Val Ile Ala Cys
     50                  55                  60
Tyr Leu Gly Ile Thr Ile Phe Ser Gly Ile Ala Phe Gly Tyr Glu Gly
 65                  70                  75                  80
Ala Phe Ser Ser Gly Ser Phe Glu Gln Asn Pro Ser Gly Val Ala Ile
                 85                  90                  95
His Asn Arg Val Leu Phe Lys Val Asp Glu Asp Thr Val Val Thr Thr
            100                 105                 110
Leu Asp Val Ile Arg Lys Leu Asn Ile Leu Phe Tyr Ser Thr Cys Pro
        115                 120                 125
Gln Leu Val Asp Ser Val Ser Ala Arg Ser Gln Tyr Tyr Ser Ala Met
    130                 135                 140
Trp Pro Val Val Leu Glu Thr Val Ile Asn Glu Phe Leu Met Ala Ala
145                 150                 155                 160
Asp Ala Lys Ala Lys Lys Ile Phe Ile Asp Pro Thr Ser Val Asn Gln
                165                 170                 175
Glu Ile Glu Ala Met Phe Gly Arg Asp Leu Ser Pro Phe Ala Lys Phe
            180                 185                 190
Phe Asp Met Thr Pro Glu Asp Val Phe Asn Val Val His Arg Ile Leu
        195                 200                 205
Val Ala Gln Arg Val Glu Gly Met Met Val Arg Ser Arg Val Met Leu
    210                 215                 220
Lys Val Thr Pro Gly Met Val Arg Glu Tyr Tyr Gln Lys Leu Ala Asp
225                 230                 235                 240
Glu Ala Ala Gln Ile Thr Gln Trp Thr Tyr Arg Val Leu Thr Ile Lys
```

```
                245                 250                 255
Ala Gly Leu Glu Phe Leu Ala His Lys Ile Ala Gly Lys Val Gln Glu
            260                 265                 270
Arg Leu Asn Glu Gly Ser Ser Trp Asp Lys Glu Arg Leu Thr Ala Leu
        275                 280                 285
Val Leu Ser Gln Gly Gly Gln Leu Met Cys Ser Glu Glu Phe Phe Arg
    290                 295                 300
Glu Asp Ala Gln Leu Ser Val Ala His Arg Gln Ser Leu Glu Glu Ile
305                 310                 315                 320
Asn Phe Pro Glu Glu Arg Cys Gly Lys Val Leu Glu His Ala Ser Gly
                325                 330                 335
Leu Lys Leu Phe Val Leu Phe Asn Arg Ala Thr Lys Thr Leu Asp Pro
            340                 345                 350
Leu Asp Lys Met Glu Ala Gln Leu Lys Gln Gln Leu Met Met Glu Phe
        355                 360                 365
Ala Ala Glu Glu Glu Ala Asn Tyr Lys Asn Lys Leu His Ala Arg Tyr
    370                 375                 380
Gly Phe Asp Pro Ala Thr Ile Thr Lys Leu Leu Ala Glu Asp Ala Pro
385                 390                 395                 400
Gln Leu Phe Ser Leu Leu
                405
```

<210>73
<211>119
<212>PRT
<213>Chlamydia trachomatis
<400>73

```
Lys Arg Arg Gly Arg Val Ala Arg Ser Ser Ile Glu Gln Leu Thr Ser
  1               5                  10                  15
Phe Leu Arg Ser Val Asn Gly Arg Ala Lys Lys Ala Leu Ser Gln Asn
            20                  25                  30
Phe Leu Val Asp Gly Asn Ile Leu Arg Lys Ile Leu Thr Thr Ala Glu
        35                  40                  45
Val Gln Pro Gly Asp Trp Val Leu Glu Ile Gly Pro Gly Phe Gly Ala
    50                  55                  60
Leu Ser Glu Val Leu Leu Ser Gln Gly Ala Asn Val Ile Ala Leu Glu
65                  70                  75                  80
Lys Asp Pro Met Phe Glu Glu Ser Leu Ser Gln Leu Pro Met Asp Ile
                85                  90                  95
Glu Ile Thr Asp Ala Cys Lys Tyr Pro Leu Thr Ser Leu Glu Asp Lys
            100                 105                 110
Val Gly Lys Gly Lys Asp Val
        115
```

<210>74
<211>170
<212>PRT
<213>Chlamydia trachomatis
<400>74

```
Gly Trp Lys Gly Lys Gly Arg Ile Val Ala Asn Leu Pro Tyr His Ile
  1               5                  10                  15
Thr Thr Pro Leu Leu Thr Lys Phe Phe Leu Glu Cys Pro Tyr Arg Trp
            20                  25                  30
Lys Thr Val Thr Val Met Ile Gln Asp Glu Val Ala Arg Arg Ile Thr
        35                  40                  45
Ala Lys Pro Gly Asp Lys Asp Tyr Gly Ser Leu Thr Val Phe Leu Ser
    50                  55                  60
Phe Phe Ala Asp Val Gln Tyr Ala Phe Lys Val Ser Pro Asn Cys Phe
65                  70                  75                  80
Tyr Pro Lys Pro Ser Val His Ser Ala Val Val His Met Arg Val His
                85                  90                  95
Glu Gln Phe Ala Leu Ala Asp Ser Glu Ile Glu Glu Phe Phe Thr Leu
            100                 105                 110
```

```
Thr Arg Ala Ala Phe Gly Gln Arg Arg Lys Leu Leu Ala Asn Ser Leu
        115                 120                 125
Lys Asn Leu Tyr Pro Lys Asp Lys Val Leu Gln Val Leu Glu Gln Leu
    130                 135                 140
Gly Phe Ser Glu Lys Thr Arg Pro Glu Thr Ile Phe Leu Glu Glu Tyr
145                 150                 155                 160
Leu Lys Ile Phe His Leu Leu Lys Asp Ile
                165                 170
```

<210>75
<211>166
<212>PRT
<213>Chlamydia trachomatis
<400>75

```
Arg Pro Ile Phe Leu Arg Leu Cys Ile Gly Ile Cys Gly Ile Met Ile
  1                 5                  10                  15
Arg Asp Leu Glu Tyr Tyr Asp Ser Pro Ile Leu Arg Lys Val Ala Ala
            20                  25                  30
Pro Val Thr Glu Ile Thr Asp Glu Leu Arg Gln Leu Val Leu Asp Met
        35                  40                  45
Ser Glu Thr Met Ala Phe Tyr Lys Gly Val Gly Leu Ala Ala Pro Gln
    50                  55                  60
Val Gly Gln Ser Ile Ser Leu Phe Ile Met Gly Val Glu Arg Glu Leu
65                  70                  75                  80
Glu Asp Gly Glu Leu Val Phe Cys Asp Phe Pro Arg Val Phe Ile Asn
                85                  90                  95
Pro Val Ile Thr Gln Lys Ser Glu Gln Leu Val Tyr Gly Asn Glu Gly
            100                 105                 110
Cys Leu Ser Ile Pro Gly Leu Arg Gly Glu Val Ala Arg Pro Asp Lys
        115                 120                 125
Ile Thr Val Ser Ala Lys Asn Leu Asp Gly Gln Gln Phe Ser Leu Ala
    130                 135                 140
Leu Glu Gly Phe Leu Ala Arg Ile Val Met His Glu Thr Asp His Leu
145                 150                 155                 160
Pro Trp Arg Leu Val Tyr
                165
```

<210>76
<211>102
<212>PRT
<213>Chlamydia trachomatis
<400>76

```
Val Val Ala Leu Phe Tyr Ile Phe Leu Phe Leu Phe Leu Leu Leu Cys
  1                 5                  10                  15
Leu Ile Leu Cys Gly Leu Val Leu Val Gln Glu Ser Lys Ser Thr Gly
            20                  25                  30
Leu Gly Ser Ser Phe Gly Val Asp Ser Gly Asp Ser Val Phe Gly Val
        35                  40                  45
Ser Thr Pro Glu Ile Leu Lys Lys Val Thr Ala Trp Leu Ala Gly Ala
    50                  55                  60
Phe Cys Leu Gly Cys Leu Ile Leu Ser Phe Ala Thr Ser Tyr Leu Gly
65                  70                  75                  80
Lys Gly Glu Asn Arg Glu Pro Leu Pro Gln Gln Tyr Val Glu Asp Leu
                85                  90                  95
Ile Gln Asp Val Glu Glu
            100
```

<210>77
<211>702
<212>PRT
<213>Chlamydia trachomatis
<400>77

```
Ser Gly Val Lys Arg Phe Phe Pro Leu Phe Ile Gly Val Leu Leu Ala
  1                 5                  10                  15
```

```
His Thr Leu Pro Ser Glu Gly Leu Ser His Gln Gln Ala Val Gln Lys
            20                  25                  30
Lys Ile Ser Tyr Leu Ser His Phe Lys Gly Ile Thr Gly Ile Met Asp
        35                  40                  45
Val Glu Asp Gly Val Leu His Ile His Asp Asp Leu Arg Leu Gln Ala
    50                  55                  60
Asn Lys Ala Tyr Val Glu Asn Arg Thr Asp Cys Gly Ile Lys Ile Val
65                  70                  75                  80
Ala His Gly Asn Val Met Val Asn Tyr Arg Gly Lys Ile Leu Ile Cys
                85                  90                  95
Asp Tyr Leu Glu Tyr Tyr Glu Asp Thr Asp Ser Cys Leu Leu Thr Asn
            100                 105                 110
Gly Arg Cys Ser Leu Tyr Pro Trp Phe Ile Gly Gly Ser Thr Ile Thr
        115                 120                 125
Ile Ser Pro Ser Ser Ile Ile Ile His Lys Gly Tyr Ile Ser Thr Ser
    130                 135                 140
Glu Gly Pro Gln Lys His Ile Cys Leu Ser Gly Asp Tyr Leu Lys Tyr
145                 150                 155                 160
Ser Ser Asp Ser Val Leu Ser Met Gly Pro Ser Arg Leu Ser Ile Cys
                165                 170                 175
Asn Thr Pro Val Leu Leu Leu Pro Gln Ile Ser Ile Met Pro Met Glu
            180                 185                 190
Ile Pro Lys Pro Pro Ile Thr Phe Arg Gly Gly Ser Gly Gly Phe Leu
        195                 200                 205
Gly Ser Tyr Leu Gly Val Ser Tyr Ser Pro Ile Ser Lys Lys His Cys
    210                 215                 220
Ser Thr Thr Leu Phe Leu Asp Ser Phe Phe Lys His Gly Ile Gly Leu
225                 230                 235                 240
Gly Tyr Asn Met Arg Phe Ser Ser Gln Glu Asn Pro Ser Asn Ala Ile
                245                 250                 255
Asn Ile Lys Ser Tyr Tyr Ala His Arg Leu Ala Ile Asp Ser Ser Gly
            260                 265                 270
Ala Lys Asp Arg Tyr Arg Leu His Gly Asp Phe Thr Phe Ser Lys Glu
        275                 280                 285
Arg Ala His Leu Ala Gly Glu Phe His Leu Ser Asp Ser Trp Glu Thr
    290                 295                 300
Val Ala Asp Ile Phe Pro Asn Asn Phe Ser Leu Lys Asn Thr Gly Pro
305                 310                 315                 320
Thr Glu Val Ser Leu Ser Trp Arg Asp Asn Asn Leu Phe Gly Lys Met
                325                 330                 335
Thr Ser Ser Val Lys Val Asn Ser Phe Gln Asn Val Lys Gln Glu Leu
            340                 345                 350
Pro Gln Ala Ile Leu His His Arg Pro Val Arg Ile Arg Arg Ser Arg
        355                 360                 365
Ile Phe Leu Glu Asn Arg Leu Glu Ala Gly Phe Leu Asp Phe His Phe
    370                 375                 380
Ser Ser Asn Ile Pro Gly Ser Asn Phe Ser Ser Trp Arg Phe Ser Ser
385                 390                 395                 400
Ala His Lys Val Tyr Cys Gly Leu Val Leu Pro Ile Gly Thr Leu Thr
                405                 410                 415
Pro Ser Leu Ser Gly Thr Ala Ile Tyr Tyr Thr Arg Met Leu Ser Pro
            420                 425                 430
Asn Ala Ala His Cys Gln Leu Ser Gly Ser Leu Ser Phe Asp Tyr Arg
        435                 440                 445
Val Ala Leu Gln Lys Glu Tyr Arg His Ala Arg His Ile Val Glu Pro
    450                 455                 460
Phe Cys Ser Phe Leu Lys Thr Thr Arg Pro Val Leu Ser Ser Asp Glu
465                 470                 475                 480
Pro His Ile Phe Ser Ile Lys Asp Ala Phe His Ser Ile Asn Leu Leu
                485                 490                 495
His Val Gly Leu Glu Ser Lys Val Leu Asn Lys His Ser Thr Leu Ser
```

SEQUENCE LISTING

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                500                 505                 510
Thr Pro Ser His Leu Lys Leu Trp Thr Thr Tyr Ile Phe Asp Glu Pro
        515                 520                 525
His Ala Lys Asp Thr Phe Pro Lys Thr Ala Cys Trp Phe Ser Leu Pro
    530                 535                 540
Leu Thr Leu Gln Asn Thr Leu Ser Leu Asp Ala Glu Trp Ile Trp Lys
545                 550                 555                 560
Lys Ser Arg Trp Asp His Leu Asn Val Ile Trp Glu Trp Ile Leu Asn
                565                 570                 575
Asp Asn Leu Gly Leu Thr Leu Glu Phe Leu His Arg Ser Lys Tyr Gly
            580                 585                 590
Phe Ile Lys Cys Ala Lys Asp Asn Tyr Thr Leu Asp Val Ser Arg Ser
        595                 600                 605
Leu Asp Thr Leu Leu Ala Ser Pro Leu Ser Asp Arg Arg Asn Leu Ile
    610                 615                 620
Thr Gly Lys Leu Phe Val Arg Pro His Pro His Trp Asn Tyr Asn Leu
625                 630                 635                 640
Asn Leu Arg Tyr Gly Trp His Arg Pro Asp Ser Pro Ser Tyr Leu Glu
                645                 650                 655
Tyr Gln Met Ile Leu Gly His Lys Ile Phe Glu His Trp Gln Leu Phe
            660                 665                 670
Ser Val Tyr Glu Lys Arg Glu Ala Asp Lys Arg Cys Phe Phe Tyr Leu
        675                 680                 685
Lys Leu Asp Lys Arg Lys Gln Lys His Arg His Pro Phe Gly
    690                 695                 700
<210>78
<211>468
<212>PRT
<213>Chlamydia trachomatis
<400>78
His Gln Leu Met Gly Leu Ser Arg Leu Ala Phe Ile Gly Phe Leu Ser
  1                 5                  10                  15
Phe Thr Leu Ser Ala Ser Cys Asp Phe Pro Ser Ser Val Ser Gln Arg
             20                  25                  30
Ile Leu Phe Ser Cys Gln Lys Ser Val Pro Gln Ala Leu Glu Ala Tyr
         35                  40                  45
Leu Glu Ala Ser Val Thr Tyr Gln Gln His Asp Phe Ser Val Leu Arg
     50                  55                  60
Val Ile Ala Glu Ser Tyr Leu Gln Gln Ser Phe Leu Ser Glu Asp Thr
 65                  70                  75                  80
His Ile Arg Lys Ser Ala Ile Ile Gly Ala Gly Leu Ser Gly Ser Ser
                 85                  90                  95
Glu Ala Leu Glu Leu Leu Ser Glu Ala Ile Glu Thr Gln Asp Leu Tyr
            100                 105                 110
Glu Gln Leu Leu Ile Leu Asn Ala Ala Thr Ser Gln Leu Ser Lys Thr
        115                 120                 125
Ser Asp Lys Leu Leu Phe Lys Gly Leu Thr Ala Ser His Pro Val Ile
    130                 135                 140
Arg Leu Glu Ala Ala Tyr Arg Leu Ala Cys Met Lys Asn Ser Lys Val
145                 150                 155                 160
Ser Asp Tyr Leu Tyr Ser Phe Ile Tyr Lys Leu Pro Glu Glu Ile Gln
                165                 170                 175
Asn Leu Ala Ala Thr Ile Phe Leu Gln Leu Glu Thr Glu Glu Ala Asp
            180                 185                 190
Ala Tyr Ile His Arg Leu Leu Ser Ser Pro Asn Asn Leu Thr Arg Asn
        195                 200                 205
Tyr Val Ala Tyr Leu Ile Gly Glu Tyr Lys Gln Lys Arg Phe Leu Pro
    210                 215                 220
Thr Leu Arg Ser Leu Leu Thr Ser Ala Ser Pro Leu Asp Gln Glu Gly
225                 230                 235                 240
Ala Leu Tyr Ala Leu Gly Lys Leu Glu Asp Ser Gly Ser Tyr Pro Arg
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                245                 250                 255
Ile Lys Ala Leu Ser Ser Arg Ser Asn Pro Glu Val Val Leu Ala Ala
            260                 265                 270
Ala Gln Thr Leu Leu Phe Leu Glu Lys Glu Glu Glu Ala Leu Pro Ile
        275                 280                 285
Leu Thr Asn Leu Cys Gln Gln Lys Leu Leu Arg Ala Leu Tyr Thr Ala
    290                 295                 300
Arg Phe Leu Ser Gln Glu Lys Gly Glu Glu Leu Leu Leu Pro Ile Phe
305                 310                 315                 320
Tyr Asn Ala Thr Gln Glu Glu Ile Arg Leu Asn Thr Ala Leu Ala Leu
                325                 330                 335
Val His Gln Gly Cys Thr Asp Pro Gln Val Leu His Tyr Leu Thr Glu
            340                 345                 350
Ile Leu Glu Ser Lys Val Leu His Arg Ile Phe Leu Pro Thr His Ser
        355                 360                 365
Thr Gly Lys Ala Ile Gln Phe Trp Lys Glu Cys Thr Thr Phe Pro Leu
    370                 375                 380
Met Ser Gln Glu Asp Lys Met Arg Thr Leu Ala Met Tyr Arg Val Ala
385                 390                 395                 400
Glu Asp Thr Ile Leu Ser Ala Leu Leu Lys Leu Pro Asn Asp Ala Tyr
                405                 410                 415
Leu Pro Tyr Leu Glu Arg Ile Leu Ala Ser Gln Lys Thr Ile Leu Ala
            420                 425                 430
Ala Lys Ala Ile Ala Phe Leu Ser Val Thr Ala His Pro Gln Ala Leu
        435                 440                 445
Ser Leu Val Ser Lys Ala Ala Leu Thr Pro Gly Asp Pro Ile Ile Xaa
    450                 455                 460
Xaa Thr Leu Ile
465
<210>79
<211>196
<212>PRT
<213>Chlamydia trachomatis
<400>79
Val Glu Ala Arg Leu Val Leu Gly Ser Ser Ser Glu Arg Arg Lys Ala
  1                 5                  10                  15
Val Leu Glu Ser Phe Arg Ile Pro Phe Ile Cys Val Ser Pro Asp Phe
             20                  25                  30
Asp Glu Arg Ser Ile Val Tyr Ser Gly Asp Pro Phe Lys Tyr Thr Lys
         35                  40                  45
Glu Leu Ala Trp Asn Lys Ala Asn Val Val Arg Ser Gln Gly Phe Ser
     50                  55                  60
Asp Ala Leu Ile Ile Thr Ala Asp Thr Val Val Val Tyr Lys Gly Glu
 65                  70                  75                  80
Val Phe Asn Lys Pro Glu Ser Glu Glu His Ala Val Glu Met Leu Arg
                 85                  90                  95
Thr Leu Ser Gly Ser Ser His Ser Val Ile Thr Thr Leu Val Leu Met
            100                 105                 110
Gln Asn Glu Lys Val Leu Ser Ala Ser Glu Asn Thr Gln Val Ser Phe
        115                 120                 125
Ile Asp Ile Pro Pro Gln His Leu Lys Thr Tyr Val Arg Ser Phe Ser
    130                 135                 140
Ser Leu Lys Arg Cys Gly Gly Tyr Cys Val Gln Asp Gly Gly Gly Leu
145                 150                 155                 160
Ile Ile Lys Gln Ile Glu Gly Cys Val Tyr Asn Ile Gln Gly Leu Pro
                165                 170                 175
Ile Lys Thr Leu Asn Gln Leu Leu Met Glu Phe Asn Ile Ser Leu Trp
            180                 185                 190
Asp Tyr Leu Val
        195
<210>80
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<211>541
<212>PRT
<213>Chlamydia trachomatis
<400>80

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Leu Tyr Ser Lys Lys Val Phe Val Ile Leu Leu Ser Met Ser Ile Val
  1               5                  10                  15
Leu Asp Lys Ile Gly Lys Thr Leu Gly Thr Arg Val Leu Phe Asp Asp
            20                  25                  30
Val Ser Val Val Phe Asn Pro Gly Asn Arg Tyr Gly Leu Thr Gly Pro
        35                  40                  45
Asn Gly Ala Gly Lys Ser Thr Leu Leu Lys Ile Ile Thr Gly Leu Val
    50                  55                  60
Glu Pro Ser Arg Gly Thr Ile Ser Leu Pro Lys Lys Ile Gly Ile Leu
65                  70                  75                  80
Arg Gln Asn Ile Asp Ser Phe Gly Asp Val Ile Val Leu Asp Cys Val
                85                  90                  95
Ile Met Gly Asn Ser Arg Leu Trp Glu Ala Met Gln Arg Arg Asp Ala
            100                 105                 110
Leu Tyr Ala Glu Glu Phe Thr Asp Ala Ile Gly Met Glu Leu Gly Glu
        115                 120                 125
Ile Glu Glu Ile Ile Gly Glu Glu Asp Gly Tyr Arg Ala Glu Ser Glu
    130                 135                 140
Ala Glu Glu Leu Leu Leu Gly Ile Gly Ile Pro Glu Glu Phe Phe Ser
145                 150                 155                 160
Gln Lys Met Ala Thr Ile Pro Leu Asp Leu Gln Phe Arg Val Leu Leu
                165                 170                 175
Cys Gln Ala Leu Phe Gly His Pro Glu Ala Leu Leu Leu Asp Glu Pro
            180                 185                 190
Thr Asn His Leu Asp Leu His Ser Ile Asn Trp Leu Gly Ser Phe Leu
        195                 200                 205
Lys Asp Tyr Asn Gly Thr Val Ile Val Val Ser His Asp Arg His Phe
    210                 215                 220
Leu Asn Thr Ile Thr Thr His Ile Ala Asp Ile Asp Tyr Asp Thr Ile
225                 230                 235                 240
Ile Ile Tyr Pro Gly Asn Tyr Asp Ala Met Val Glu Met Lys Thr Ala
                245                 250                 255
Ser Arg Glu Gln Glu Lys Ala Asp Ile Lys Ser Lys Glu Lys Lys Ile
            260                 265                 270
Ala Gln Leu Arg Glu Phe Val Ala Lys Phe Gly Ala Gly Ser Arg Ala
        275                 280                 285
Ser Gln Val Gln Ser Arg Leu Arg Glu Ile Lys Lys Leu Gln Pro Gln
    290                 295                 300
Glu Leu Lys Lys Ser Asn Ile Gln Arg Pro Tyr Ile Arg Phe Pro Val
305                 310                 315                 320
Ser Asp Lys Thr Ser Gly Lys Val Val Phe Ser Ile Glu Gly Ile Ser
                325                 330                 335
Lys Thr Tyr Asp Ala Asp Pro Leu Leu Phe Asn Pro Phe Ser Leu Glu
            340                 345                 350
Ile Tyr Gln Gly Asp Lys Ile Gly Val Ile Gly Asn Asn Gly Leu Gly
        355                 360                 365
Lys Thr Thr Leu Met Lys Leu Leu Ala Gly Val Glu Gln Pro Ser Gln
    370                 375                 380
Gly Gln Val Lys Leu Gly His Asn Val Ala Phe Ser Tyr Phe Pro Gln
385                 390                 395                 400
Asn His Ala Asp Ile Leu Lys Asp Cys Gly Glu Glu Thr Leu Phe Glu
                405                 410                 415
Trp Leu Arg Arg Arg Lys Thr Gly Ile Thr Asp Gln Glu Val Arg Ser
            420                 425                 430
Val Leu Gly Lys Met Leu Phe Gly Gly Asp Asp Ala Phe Lys Gln Val
        435                 440                 445
Lys Ala Leu Ser Gly Gly Glu Thr Ala Arg Leu Leu Met Ala Gly Met
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    450                 455                 460
Met Leu Glu Asn His Asn Met Leu Ile Leu Asp Glu Ala Asn Asn His
465                 470                 475                 480
Leu Asp Leu Glu Ser Val Ser Ala Leu Ala Trp Ala Ile Asn Asp Tyr
                485                 490                 495
Pro Gly Thr Ala Ile Phe Val Ser His Asp Arg Thr Leu Ile Asp Glu
            500                 505                 510
Cys Ala Thr Lys Leu Leu Ile Phe Asp Lys Gly Thr Ile Ser Phe Phe
        515                 520                 525
Asp Gly Pro Met Ser Glu Tyr Leu Ala Ser Gln Lys Lys
    530                 535                 540
<210>81
<211>100
<212>PRT
<213>Chlamydia trachomatis
<400>81
Arg Phe Pro Gly Leu Asn Thr Thr Asp Thr Ser Ser Asn Lys Thr Arg
  1               5                  10                  15
Val Pro Asn Val Leu Pro Ile Leu Ser Arg Thr Ile Leu Met Asp Lys
            20                  25                  30
Arg Ile Thr Lys Thr Phe Leu Glu Tyr Lys Lys Phe Ala Gly Val Val
        35                  40                  45
Thr Pro Leu Ser Cys Glu Gly Glu Phe His Arg Gly Ser Val Phe Leu
    50                  55                  60
Ile Ser Trp Lys His Glu Tyr Lys Trp Leu Ser Ser Gln Glu Lys Tyr
65                  70                  75                  80
Gly Leu Thr Gly Val Glu Trp Phe Leu Asn Pro Ser Arg Ala Leu Thr
                85                  90                  95
Ser Glu Trp Gln
            100
<210>82
<211>317
<212>PRT
<213>Chlamydia trachomatis
<400>82
Leu Gly Met Ile Thr Ser Phe Tyr Ala Phe Leu Asp Tyr Leu Lys Asn
  1               5                  10                  15
Met Lys Ala Ser Ser Leu His Thr Leu Arg Asn Tyr Cys Met Asp Leu
            20                  25                  30
Ser Ser Leu Lys Cys Phe Leu Glu Lys Lys Ser Asp Leu Ser Pro Thr
        35                  40                  45
Pro Pro Leu Ser Leu His Asp Asn Thr Tyr Asp Tyr Pro Pro Leu Ser
    50                  55                  60
Phe Ser Leu Phe Thr Lys Asp Asn Ile Arg Leu Tyr Leu Leu Glu Gln
65                  70                  75                  80
Ile Gln Thr His His Ser Lys Arg Thr Val Arg Arg Arg Leu Ser Ala
                85                  90                  95
Ile Lys Ser Phe Ala Arg Phe Cys Val Lys Asn Gln Leu Ile Pro Glu
            100                 105                 110
Asn Pro Ala Glu Met Ile Arg Gly Pro Arg Leu Pro Gln Glu Leu Pro
        115                 120                 125
Ser Pro Leu Thr Tyr Glu Gln Val Leu Ala Leu Met Ala Ala Pro Glu
    130                 135                 140
Leu Asp Lys Val Thr Gly Phe Arg Asp Arg Cys Leu Leu Glu Leu Phe
145                 150                 155                 160
Tyr Ser Ser Gly Leu Arg Ile Ser Glu Ile Thr Ala Leu Asn Arg Ala
                165                 170                 175
Asp Ile Asp Phe Gln Ser His Leu Leu His Ile Arg Gly Lys Gly Lys
            180                 185                 190
Lys Glu Arg Ile Val Pro Met Thr Lys Val Ala Val Gln Trp Leu Gln
        195                 200                 205
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Asp Tyr Leu Asn His Pro Asp Arg Ala Ser Val Glu Gln Asp His Gln
    210                 215                 220
Ala Cys Phe Leu Asn Arg Phe Gly Lys Arg Leu Ser Thr Arg Ser Ile
225                 230                 235                 240
Asp Arg Lys Phe Gln Gln Tyr Leu Leu Lys Thr Gly Leu Ser Gly Ser
                245                 250                 255
Ile Thr Pro His Thr Ile Arg His Thr Ile Ala Thr His Trp Leu Glu
            260                 265                 270
Arg Gly Met Asp Leu Lys Thr Ile Gln Leu Leu Leu Gly His Thr Ser
        275                 280                 285
Leu Glu Thr Thr Thr Ile Tyr Thr His Val Ser Met Lys Leu Lys Lys
    290                 295                 300
Gln Ile His Asp Glu Thr His Pro His Asn Leu Glu Glu
305                 310                 315
<210>83
<211>304
<212>PRT
<213>Chlamydia trachomatis
<400>83
Met Ser Tyr Arg Gly Leu Thr Ile Leu Gly Cys Ser Ser Gln Gln Pro
  1               5                  10                  15
Thr Arg His Arg Asn His Gly Ala Tyr Leu Leu Arg Trp Asn Gly Glu
            20                  25                  30
Gly Leu Leu Phe Asp Pro Gly Glu Gly Thr Gln Arg Gln Phe Ile Tyr
        35                  40                  45
Ala Asn Ile Ala Pro Thr Val Val Ser Arg Ile Phe Ile Ser His Phe
    50                  55                  60
His Gly Asp His Cys Leu Gly Leu Gly Ser Met Leu Met Arg Leu Asn
65                  70                  75                  80
Leu Asp Arg Val Ser His Pro Ile His Cys Tyr Tyr Pro Ala Ser Gly
                85                  90                  95
Lys Lys Tyr Phe Asp Arg Leu Arg Tyr Ser Thr Ile Tyr His Glu Thr
            100                 105                 110
Ile Lys Val Ile Glu His Pro Ile Asp Arg Glu Gly Ile Val Glu Asp
        115                 120                 125
Phe Gly Asn Phe Arg Ile Glu Ser Arg Gln Leu Asp His Leu Val Asp
    130                 135                 140
Thr Leu Gly Trp Arg Ile Thr Glu Pro Asp Thr Thr Lys Phe Ile Pro
145                 150                 155                 160
Glu Lys Ile Lys Ala Ala Gly Leu Lys Gly Pro Ile Met Gln Glu Leu
                165                 170                 175
Ile Asn Lys Gly Arg Val Lys Val Asn Asp Thr Ile Val His Leu Asp
            180                 185                 190
Asp Val Ser Tyr Thr Arg Lys Gly Asp Ser Ile Ala Val Val Ala Asp
        195                 200                 205
Ser Leu Pro Cys Gln Ala Ile Val Asp Leu Ala Arg Asn Ala Arg Ile
    210                 215                 220
Leu Leu Cys Glu Ser Thr Tyr Leu Glu Glu His Ser His Leu Ala Lys
225                 230                 235                 240
Ser His Tyr His Met Thr Ala Lys Gln Ala Ala Glu Gln Ala Lys Arg
                245                 250                 255
Ala Glu Val Gln Gln Leu Ile Leu Thr His Phe Ser Ala Arg Tyr Asn
            260                 265                 270
Thr Thr Glu Glu Phe Val Gln Glu Ala Gly Glu Ile Phe Pro Asn Val
        275                 280                 285
Phe Ala Ala Glu Glu Phe Cys Ser Tyr Glu Phe Pro Lys Asn Pro Ser
    290                 295                 300
<210>84
<211>698
<212>PRT
<213>Chlamydia trachomatis
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<400>84

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Ala Gln Val Leu Leu Ser Ile Glu Asp Arg Ile Arg Ile Val Lys Pro
 1               5                  10                  15
Ile Gln Asp Lys Tyr Leu Lys Ala Lys Val Ser Tyr His Lys Glu Asn
            20                  25                  30
Lys Glu Leu Thr Glu Glu Leu Lys Ala Tyr Ser Ile Ser Ile Val Ser
        35                  40                  45
Ile Ile Lys Asp Leu Leu Lys Leu Asn Pro Leu Phe Lys Glu Glu Leu
    50                  55                  60
Gln Ile Phe Leu Gly His Ser Asp Phe Thr Glu Pro Gly Lys Leu Ala
65                  70                  75                  80
Asp Phe Ser Val Ala Leu Thr Thr Ala Thr Arg Glu Glu Leu Gln Glu
                85                  90                  95
Ile Leu Glu Thr Thr Asp Met His Asp Arg Ile Asp Lys Ala Leu Val
            100                 105                 110
Leu Leu Lys Lys Glu Leu Asp Leu Ser Arg Leu Gln Ser Ser Ile Asn
        115                 120                 125
Gln Lys Ile Glu Ala Thr Ile Thr Lys Ser Gln Lys Glu Phe Phe Leu
    130                 135                 140
Lys Glu Gln Leu Lys Thr Ile Lys Lys Glu Leu Gly Leu Glu Lys Asp
145                 150                 155                 160
Asp His Ala Val Asp Leu Glu Lys Phe Met Glu Arg Phe Asn Lys Arg
                165                 170                 175
Asp Val Pro Gln Tyr Ala Met Asp Val Ile Gln Asp Glu Met Asp Lys
            180                 185                 190
Leu Gln Thr Leu Glu Thr Ser Ser Ala Glu Tyr Ala Val Cys Arg Asn
        195                 200                 205
Tyr Leu Asp Trp Leu Thr Ile Val Pro Trp Gly Ile Gln Thr Lys Glu
    210                 215                 220
Tyr His Asp Leu Lys Lys Ala Glu Ser Ile Leu Asn Lys Asp His Tyr
225                 230                 235                 240
Gly Leu Glu Asp Ile Lys Gln Arg Ile Leu Glu Leu Ile Ser Val Gly
                245                 250                 255
Lys Leu Ala Asn Gly Met Lys Gly Ser Ile Ile Cys Leu Val Gly Pro
            260                 265                 270
Pro Gly Val Gly Lys Thr Ser Ile Gly Arg Ser Ile Ala Lys Val Leu
        275                 280                 285
His Arg Lys Phe Phe Arg Phe Ser Val Gly Gly Met Arg Asp Glu Ala
    290                 295                 300
Glu Ile Lys Gly His Arg Arg Thr Tyr Ile Gly Ala Met Pro Gly Lys
305                 310                 315                 320
Leu Val Gln Ala Leu Lys Gln Ser Gln Ile Met Asn Pro Val Ile Met
                325                 330                 335
Ile Asp Glu Val Asp Lys Ile Gly Ser Ser Tyr His Gly Asp Pro Ala
            340                 345                 350
Ser Ala Leu Leu Glu Val Leu Asp Pro Glu Gln Asn Lys Asp Phe Leu
        355                 360                 365
Asp His Tyr Leu Asp Val Arg Val Asp Leu Ser Asn Val Leu Phe Ile
    370                 375                 380
Leu Thr Ala Asn Val Leu Asp Ser Ile Pro Asp Pro Leu Leu Asp Arg
385                 390                 395                 400
Met Glu Val Leu Arg Leu Ser Gly Tyr Ile Leu Glu Glu Lys Leu Gln
                405                 410                 415
Ile Ala Thr Lys Tyr Leu Val Pro Arg Ala Arg Lys Glu Met Gly Leu
            420                 425                 430
Ser Ala Gln Asn Val Thr Phe Gln Pro Glu Ala Ile Lys His Met Ile
        435                 440                 445
Asn Asn Tyr Ala Arg Glu Ala Gly Val Arg Thr Leu Asn Glu Asn Ile
    450                 455                 460
Lys Lys Val Leu Arg Lys Val Ala Leu Lys Ile Val Gln Asn Gln Glu
465                 470                 475                 480
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Lys Asn Pro Ser Lys Lys Ser Arg Phe Thr Ile Thr Pro Lys Asn Leu
485 490 495
Gln Asp Tyr Leu Gly Lys Pro Val Phe Ser Ser Asp Arg Phe Tyr Glu
500 505 510
Lys Thr Pro Val Gly Val Ala Thr Gly Leu Ala Trp Thr Ser Leu Gly
515 520 525
Gly Ala Thr Leu Tyr Ile Glu Ser Val Gln Val Pro Ser Ser Ser Gly
530 535 540
Lys Ala Asp Met His Leu Thr Gly Gln Ala Gly Asp Val Met Lys Glu
545 550 555 560
Ser Ser Gln Ile Ala Trp Thr Tyr Leu His Ser Ala Leu Glu Arg Tyr
565 570 575
Ala Pro Gly Gln Pro Phe Phe Glu Lys Ser Gln Val His Ile His Ile
580 585 590
Pro Glu Gly Ala Thr Pro Lys Asp Gly Pro Ser Ala Gly Ile Thr Met
595 600 605
Val Thr Ser Leu Leu Ser Leu Leu Leu Asp Val Pro Val Leu Asn Asn
610 615 620
Leu Gly Met Thr Gly Glu Leu Thr Leu Thr Gly Arg Val Leu Gly Ile
625 630 635 640
Gly Gly Ile Arg Glu Lys Leu Ile Ala Ala Arg Arg Ser Lys Leu Asn
645 650 655
Ile Leu Ile Phe Pro Glu Asp Asn Arg Arg Asp Tyr Asp Glu Leu Pro
660 665 670
Ala Tyr Leu Lys Lys Gly Leu Lys Val His Phe Val Thr His Tyr Asp
675 680 685
Asp Val Phe Lys Ile Ala Phe Pro Gly Val
690 695

<210>85
<211>211
<212>PRT
<213>Chlamydia trachomatis
<400>85
Ala Val Tyr Lys Tyr Phe Ile Val Asp Thr Ser Gly Ser Gln Pro Phe
1 5 10 15
Leu Ala Tyr Val Asp Cys Arg Asp Val Leu Glu Val Trp Ser Leu Pro
20 25 30
Thr Gly Pro Asp Gln Gly Val Val Leu Asn Phe Ile Phe Asn Ser Leu
35 40 45
Asp Leu Pro Phe Gln Gly Ile Gly Val Ser Val Gly Pro Gly Gly Phe
50 55 60
Ser Ala Thr Arg Val Gly Val Ala Phe Ala Gln Gly Leu Ser Leu Ala
65 70 75 80
Lys Asn Val Pro Leu Val Gly Tyr Ser Ser Leu Glu Gly Tyr Leu Ser
85 90 95
Leu Gly Gln Glu Glu Glu Ala Leu Leu Leu Pro Leu Gly Lys Lys Gly
100 105 110
Gly Val Val Ala Leu Asn Ser Glu Leu Ser Leu Asp Gly Phe Leu Leu
115 120 125
Thr Asp Thr Thr Ser Thr Pro Gly Ile Leu Leu Ser Tyr Ser Glu Ala
130 135 140
Leu Glu Tyr Cys Leu Asp Lys Gly Cys Cys His Val Ile Ser Pro Asp
145 150 155 160
Pro Thr Tyr Phe Val Glu Leu Phe Ser Ser Arg Ile Ser Val Arg Lys
165 170 175
Val Val Pro Cys Ile Asp Arg Ile Arg Lys Tyr Val Val Ser Gln Phe
180 185 190
Val Leu Ser Gln Asn Leu Pro Leu Cys Leu Asp Tyr Arg Ser Ile Ser
195 200 205
Ser Phe Phe
210

<210>86
<211>353
<212>PRT
<213>Chlamydia trachomatis
<400>86
Ser Gly Gly Arg Phe Lys Glu Val Ser Glu Ala Tyr Glu Val Leu Gly
1 5 10 15
Asp Ala Gln Lys Arg Glu Ser Tyr Asp Arg Tyr Gly Lys Asp Gly Pro
20 25 30
Phe Ala Gly Ala Gly Gly Phe Gly Gly Ala Gly Met Gly Asn Met Glu
35 40 45
Asp Ala Leu Arg Thr Phe Met Gly Ala Phe Gly Gly Asp Phe Gly Gly
50 55 60
Asn Gly Gly Gly Phe Phe Glu Gly Leu Phe Gly Gly Leu Gly Glu Ala
65 70 75 80
Phe Gly Met Arg Gly Gly Ser Glu Ser Ser Arg Gln Gly Ala Ser Lys
85 90 95
Lys Val His Ile Thr Leu Ser Phe Glu Glu Ala Ala Lys Gly Val Glu
100 105 110
Lys Glu Leu Leu Val Ser Gly Tyr Lys Ser Cys Asp Ala Cys Ser Gly
115 120 125
Ser Gly Ala Asn Thr Ala Lys Gly Val Lys Val Cys Asp Arg Cys Lys
130 135 140
Gly Ser Gly Gln Val Val Gln Ser Arg Gly Phe Phe Ser Met Ala Ser
145 150 155 160
Thr Cys Pro Asp Cys Ser Gly Glu Gly Arg Val Ile Thr Asp Pro Cys
165 170 175
Ser Val Cys Arg Gly Gln Gly Arg Ile Lys Asp Lys Arg Ser Val His
180 185 190
Val Asn Ile Pro Ala Gly Val Asp Ser Gly Met Arg Leu Lys Met Glu
195 200 205
Gly Tyr Gly Asp Ala Gly Gln Asn Gly Ala Pro Ala Gly Asp Leu Tyr
210 215 220
Val Phe Ile Asp Val Glu Pro His Pro Val Phe Glu Arg His Gly Asp
225 230 235 240
Asp Leu Val Leu Glu Leu Pro Ile Gly Phe Val Asp Ala Ala Leu Gly
245 250 255
Ile Lys Lys Glu Ile Pro Thr Leu Leu Lys Glu Gly Thr Cys Arg Leu
260 265 270
Ser Ile Pro Glu Gly Ile Gln Ser Gly Thr Val Leu Lys Val Arg Gly
275 280 285
Gln Gly Phe Pro Asn Val His Gly Lys Ser Arg Gly Asp Leu Leu Val
290 295 300
Arg Val Ser Val Glu Thr Pro Gln His Leu Ser Asn Glu Gln Lys Asp
305 310 315 320
Leu Leu Arg Gln Phe Ala Ala Thr Glu Lys Ala Glu Asn Phe Pro Lys
325 330 335
Lys Arg Ser Phe Leu Asp Lys Ile Lys Gly Phe Phe Ser Asp Phe Ala
340 345 350
Val

<210>87
<211>682
<212>PRT
<213>Chlamydia trachomatis
<400>87
Glu Gly Ala Ala Val Arg His Ser Val Tyr Gln Leu Asp Ser Ala Val
1 5 10 15
Glu Asn Val Phe Arg Leu Ala Trp Thr Leu Arg Phe Ser Glu Arg Lys
20 25 30
Met Leu Leu Leu Ser Arg Gln Ser Gly Ser Gly Gly Ser Phe Gln Leu

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          35                  40                  45
Ser Cys Ala Gly His Glu Leu Ala Gly Val Val Ala Ala Lys Ser Leu
     50                  55                  60
Ile Pro Gly Lys Asp Trp Ala Phe Pro Tyr Tyr Arg Asp Gln Gly Phe
 65                  70                  75                  80
Pro Leu Gly Leu Gly Cys Asp Leu Ser Glu Ile Phe Ala Ser Phe Leu
                 85                  90                  95
Ala Arg Thr Thr Gln Asn His Ser Ala Gly Arg Met Met Pro Tyr His
            100                 105                 110
Tyr Ser His Lys Lys Leu Arg Ile Cys Cys Gln Ser Ser Val Val Gly
        115                 120                 125
Thr Gln Phe Leu Gln Ala Ala Gly Arg Ala Trp Gly Val Lys Asn Ser
    130                 135                 140
Gly Lys Ser Glu Val Val Tyr Val Ser Gly Gly Asp Gly Ser Thr Ser
145                 150                 155                 160
Gln Gly Glu Phe His Glu Met Leu Asn Phe Ala Ser Leu His Gln Leu
                165                 170                 175
Pro Leu Val Ile Ala Ile Gln Asn Asn Gln Trp Ala Ile Ser Val Pro
            180                 185                 190
Phe Ala Asp Gln Cys Gly Ala Asp Leu Val Ala Leu Gly Asn Ser Tyr
        195                 200                 205
Ser Gly Leu Ala Thr Tyr Glu Val Asp Gly Gly Asp Val Ser Val Leu
    210                 215                 220
Thr Gln Thr Phe Glu Arg Ala Val Ser Asp Ala Arg His Arg His Ile
225                 230                 235                 240
Pro Ala Leu Val Ile Val Asn Val Val Arg Leu Glu Ser His Ser Asn
                245                 250                 255
Ser Asp Asn Gln Ala Lys Tyr Arg Ser Glu Glu Asp Leu Ser Cys Cys
            260                 265                 270
Gln Ala Gln Asp Pro Leu Val Arg Leu Glu Lys Ser Leu Leu Asp Asp
        275                 280                 285
Phe Gly Val Ala His Glu Val Ile Glu Gln Ile Lys Ala Glu Leu Gln
    290                 295                 300
Glu Thr Val Asn Gln Ala Cys Glu Leu Ala Glu Ser Ala Pro Phe Pro
305                 310                 315                 320
Cys Lys Gly Ala Thr Lys His Glu Val Phe Ala Pro Tyr Asn Ile Ser
                325                 330                 335
Leu Ile Asp Tyr Glu Asn Ala Leu Glu Thr Ala Ser Leu Gln Lys Leu
            340                 345                 350
Glu Pro Arg Val Met Arg Asp Ala Ile Thr Glu Ala Leu Val Glu Glu
        355                 360                 365
Met Gln Arg Asp Pro Gly Val Val Val Phe Gly Glu Asp Val Ala Gly
    370                 375                 380
Asn Lys Gly Gly Val Phe Gly Val Thr Arg Thr Leu Thr Glu Gln Phe
385                 390                 395                 400
Gly Glu Asn Arg Cys Phe Asn Thr Pro Leu Ala Glu Ala Thr Ile Ile
                405                 410                 415
Gly Ala Ala Val Gly Met Ala Phe Asp Gly Phe Tyr Lys Pro Val Ala
            420                 425                 430
Glu Ile Gln Phe Ala Asp Tyr Ile Trp Pro Gly Ile Asn Gln Leu Phe
        435                 440                 445
Ser Glu Ala Ala Ser Ile Tyr Tyr Arg Ser Ala Gly Glu Trp Glu Met
    450                 455                 460
Pro Ile Val Ile Arg Thr Pro Cys Gly Gly Tyr Ile Gln Gly Gly Pro
465                 470                 475                 480
Tyr His Ser Gln Asn Ile Glu Ala Phe Leu Ala His Cys Pro Gly Leu
                485                 490                 495
Lys Val Val Tyr Pro Ser Asn Ala Ala Asp Ala Lys Ala Leu Leu Lys
            500                 505                 510
Ala Ala Ile Arg Asp Pro Asn Pro Val Val Phe Leu Glu His Lys Ala
        515                 520                 525
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Leu Tyr Gln Arg Arg Leu Phe Ser Thr Thr Pro Val Phe Ser Ser Asp
    530                 535                 540
Tyr Val Leu Pro Phe Gly Gln Ala Arg Ile Val His Pro Gly Thr Asp
545                 550                 555                 560
Leu Thr Ile Val Ser Trp Gly Met Ser Leu Val Met Ser Val Glu Val
                565                 570                 575
Ala Arg Asp Leu Leu Glu Leu Gly Ile Ser Val Glu Val Ile Asp Leu
            580                 585                 590
Arg Thr Ile Val Pro Cys Asp Phe Ala Thr Val Cys Glu Ser Val Lys
        595                 600                 605
Lys Thr Gly Lys Leu Leu Val Val His Glu Ala Ser Glu Phe Cys Gly
    610                 615                 620
Phe Gly Ser Glu Leu Val Ala Leu Val Ala Glu Arg Ala Tyr Arg Tyr
625                 630                 635                 640
Leu Asp Ala Pro Ile Lys Arg Ile Gly Ala Leu His Ala Pro Val Pro
                645                 650                 655
Tyr Ser Lys Val Leu Glu Asn Glu Val Leu Pro Gln Lys Glu Lys Ile
            660                 665                 670
Phe Gln Glu Ala Lys Leu Leu Ala Glu Phe
        675                 680
<210>88
<211>446
<212>PRT
<213>Chlamydia trachomatis
<400>88
Asp Arg Pro Thr Asn Ser Asn His Pro Leu Gly Asn Arg Gly Thr Leu
  1                 5                  10                  15
Ala Asn Thr Ser Ser Gln Glu Ser Val Leu Arg Ile Cys Ser Arg Glu
             20                  25                  30
Ser Thr Ser Thr Gly Cys Leu Glu Gln Ala Asp Val Thr Leu Ser Leu
         35                  40                  45
Tyr His Cys Ile Pro Asn Leu Ile Thr Ser Pro Ile Cys Leu Arg Ile
     50                  55                  60
Arg Leu Phe Ser Ser Cys Ser Val Phe Gln Lys Gln His Pro Ile Phe
 65                  70                  75                  80
Ile Gly Ser Ala Tyr Trp Leu Ala Gly Met Leu Ala His Gln Ala Pro
                 85                  90                  95
Ile Cys Cys Ala Leu Leu Ile Val Ala Leu His Pro Phe Ile Pro Lys
            100                 105                 110
Arg Cys Leu Lys Thr Leu Phe Ser Leu Ser Ile Cys Phe Gly Val Pro
        115                 120                 125
Leu Leu Phe Ser Pro Leu Ile Ser Pro Ser Asn Ala Ser Arg Ser Val
    130                 135                 140
Ala Asn Ser Lys Ile Gln Val Thr Lys Gly Ser Ala Ser Gly Tyr Phe
145                 150                 155                 160
Leu Ile Lys Lys Lys Leu Thr His Arg Tyr Ser Gly Thr Ala Leu Ser
                165                 170                 175
Leu Glu Thr Glu Asp Lys Gln Ser Tyr Gln Asn Leu Pro Cys Ser Ile
            180                 185                 190
Ile Ser Thr Ile Pro Leu Ser Glu His Thr Val Tyr His Leu Glu Gly
        195                 200                 205
Cys Val Ser Lys Ser Ser Cys Pro Ile Thr Phe Arg Ser Ser Lys Leu
    210                 215                 220
Ile Asn Thr Pro Thr Gln Ser Ser Ile Phe Leu Arg Asn Ser Ser Asn
225                 230                 235                 240
Tyr Ser Leu Pro Ile Leu Lys Glu Asn Phe Arg Phe Phe Leu His Gln
                245                 250                 255
Arg Ile Leu Asn Leu Phe Ser Asp Lys Asp Ile Gly Arg Phe Ser Ser
            260                 265                 270
Ser Leu Ile Leu Gly Thr Pro Leu Ser Tyr Lys His Lys Glu Leu Phe
        275                 280                 285
```

```
Lys Ser Lys Gly Leu Ser His Leu Phe Ser Val Ser Gly Trp His Phe
    290                 295                 300
Ser Leu Phe Ala Asn Thr Phe Phe Phe Leu Leu Gly Thr Leu Ser Pro
305                 310                 315                 320
Lys Lys Arg Gly Leu Trp Val Leu Phe Leu Leu Ser Leu Leu Asn Phe
                325                 330                 335
Val Phe Pro Thr Ser Pro Ser Val Phe Arg Thr Trp Phe Ser Ser Ile
            340                 345                 350
Leu Phe Cys Leu Ala Pro Phe Ser Ile Gly His Cys Ser Ser Leu Asn
        355                 360                 365
Arg Leu Gly Ile Ser Phe Ile Phe Cys Ser Leu Phe Phe Pro Ile Ser
    370                 375                 380
Ser Pro Ala Leu Ile Leu Ser Phe Leu Ala Thr Leu Gly Ile Leu Phe
385                 390                 395                 400
Ser Leu Tyr Arg Tyr Tyr Val Ser Phe Thr Leu Pro Gly Asn His Tyr
                405                 410                 415
Ser Ala Leu Val Gly Phe Ser Ser Leu Phe Gly Leu Tyr Ser Gln Pro
            420                 425                 430
Tyr Gln Ser Leu Leu Leu Pro Ser Phe Leu Ser Phe Ser Gln
        435                 440                 445
<210>89
<211>122
<212>PRT
<213>Chlamydia trachomatis
<400>89
Arg Tyr Lys Glu Asn Lys Met Pro Lys Val Ala Lys Lys Leu Ser Ile
  1                 5                  10                  15
Ser Ala Gly Asp Asp Ile Gly Lys Lys Ser Glu Gln Lys Ile Lys Leu
             20                  25                  30
Ile Pro Ser Arg Phe Arg Leu Glu Gln Cys Pro Ile Glu Lys Gly Ala
         35                  40                  45
Arg Gln Asn Arg Ile Leu Glu Asn Gln Val Leu Asn Thr Glu Gly Glu
     50                  55                  60
Val Gly Asn Thr Lys Leu Arg Arg Glu Ser Arg Lys Arg Thr Gln Arg
 65                  70                  75                  80
Pro Arg Phe Leu Gly Glu Ser Val Pro Asn Lys Lys Lys Lys Val Leu
                 85                  90                  95
Ala Asn Ser Glu Lys Cys His Pro Asp Thr Glu Lys Arg Trp Asp Asn
            100                 105                 110
Pro Leu Leu Leu Asn Ser Ser Leu Cys Leu
        115                 120
<210>90
<211>116
<212>PRT
<213>Chlamydia trachomatis
<400>90
Ala Leu Pro Met Lys Ile Gly Cys Cys Phe Trp Lys Thr Glu Gln Glu
  1                 5                  10                  15
Leu Asn Ser Leu Ile Arg Lys Gln Ile Gly Asp Val Met Arg Leu Gly
             20                  25                  30
Met Gln Trp Tyr Lys Asp Ser Val Thr Ser Ala Cys Ser Lys Gln Pro
         35                  40                  45
Val Glu Val Leu Ser Leu Glu Gln Met Arg Arg Thr Leu Ser Trp Glu
     50                  55                  60
Glu Val Phe Ala Lys Val Pro Arg Leu Pro Arg Gly Trp Phe Glu Leu
 65                  70                  75                  80
Val Gly Leu Ser Gln Ala Asp Arg Ile Glu Leu Phe Arg Asp Phe Trp
                 85                  90                  95
Phe Ser Ala Leu Gly Val Glu Asn Thr Asp Phe Pro Gly Ile Cys His
            100                 105                 110
Phe Phe Pro Leu
```

115

<210>91
<211>183
<212>PRT
<213>Chlamydia trachomatis
<400>91

```
Phe Pro Trp Tyr Leu Ser Phe Phe Ser Ser Leu Ser His Leu Asp Val
  1               5                  10                  15
Arg Ile Thr Arg Asn Ser Leu Ser Ala Pro Tyr Asp Val Gln Met Val
            20                  25                  30
Tyr Ser Tyr Lys Gly Ile Val Tyr Leu Gly Ala Pro Pro Phe Glu Thr
        35                  40                  45
Val Gly Val Val Phe Pro Lys Leu Gly Asp Glu Thr Tyr Arg His Phe
    50                  55                  60
Phe Ser Ile His Asn Gly Phe Ser Arg Glu Gly Glu Ile Gly Ile Phe
65                  70                  75                  80
Pro Tyr Arg Tyr Leu Ala Gln Ala Gln Tyr Leu Leu Arg Glu Asp Leu
                85                  90                  95
Leu Ser Arg Gly Lys Ile Ser Leu Glu Asp Asn Cys Ser Ser Leu Gly
            100                 105                 110
Ile Phe Pro Phe Tyr Ala Gln Tyr Asp Ile Ala Asp Ser Arg Cys Phe
        115                 120                 125
Ile Ile Asp Ala Lys Ile Arg Gln Tyr Phe Pro Ser Tyr Asn Val Arg
    130                 135                 140
Leu Asp Asn Gln Ser Leu Phe Pro His Gly Lys Ile Ala Ile Ser Glu
145                 150                 155                 160
Met Leu Ser Asp Ser His Tyr His Thr Phe Leu Leu Trp Leu Glu Gln
                165                 170                 175
Tyr Leu Leu Ser Gln Lys Pro
            180
```

<210>92
<211>126
<212>PRT
<213>Chlamydia trachomatis
<400>92

```
Leu Asp Leu Ala Tyr His His Phe Val Phe Thr Arg Thr Gly Lys Asn
  1               5                  10                  15
Thr Met Ser Gly Gly Asn Asp Ser Val Leu His Arg Pro Val Glu Ala
            20                  25                  30
Pro Leu Met Glu Asp Gly Glu Leu Ser Ala Val Phe Thr Ile Arg Asn
        35                  40                  45
Pro Ser Gly Ile His Val Arg Pro Ala Gly Thr Ile Val Lys Leu Phe
    50                  55                  60
Glu Gly Glu Glu Cys Glu Ala Thr Leu Thr Tyr Leu Gly Lys Thr Val
65                  70                  75                  80
Asn Ala Arg Ser Val Met Ser Ile Leu Met Leu Gly Ala Ser Tyr Asn
                85                  90                  95
Gly Glu Val Ala Val His Ile Lys Gly Pro Ser Ala Ser Arg Val Met
            100                 105                 110
Gln Lys Leu Ser Glu Val Phe Asn Ser Gly Phe Gly Glu Leu
        115                 120                 125
```

<210>93
<211>571
<212>PRT
<213>Chlamydia trachomatis
<400>93

```
Met Ser Val Thr Gly Gln Asp Asn Lys Glu Leu Gln Gln Glu Phe Val
  1               5                  10                  15
Ile Val Gly Glu Pro Ile Val Pro Gly Ile Gly Leu Gly Lys Ala Leu
            20                  25                  30
Leu Leu Gly Lys Ser Ser Leu Arg Ile Arg Glu Leu Thr Leu Pro Gln
```

```
          35                  40                  45
Glu Glu Val Glu His Glu Ile Ser Arg Tyr Tyr Lys Ala Leu Lys Arg
     50                  55                  60
Ser Arg Ser Asp Leu Ala Ala Leu Glu Lys Glu Ala Lys Gly Lys Gln
 65                  70                  75                  80
Gly Tyr Gln Glu Ile Ala Ser Ile Leu Gln Ala His Leu Glu Ile Ile
                 85                  90                  95
Lys Asp Pro Leu Leu Thr Glu Glu Val Val Lys Thr Ile Arg Lys Asp
            100                 105                 110
Arg Lys Asn Ala Glu Phe Val Phe Ser Ser Val Met Gly Glu Ile Glu
        115                 120                 125
Lys Ser Leu Cys Ala Val Gln Lys Thr Thr Ala Thr Thr Val Asp Arg
    130                 135                 140
Val Gln Asp Ile His Asp Ile Ser Asn Arg Val Ile Gly His Leu Cys
145                 150                 155                 160
Cys Gln His Lys Ser Ser Leu Gly Glu Phe Asp Gln Asn Leu Ile Val
                165                 170                 175
Phe Ser Glu Glu Leu Thr Pro Ser Glu Ala Ala Asn Ala Asn Pro Glu
            180                 185                 190
Tyr Ile Arg Gly Phe Val Ser Leu Glu Gly Ala Lys Thr Ser His Thr
        195                 200                 205
Ala Ile Val Ser Leu Ala Lys Asn Ile Pro Tyr Val Ala Asn Phe Thr
    210                 215                 220
Thr Glu Leu Trp Asp Thr Ile Asn Glu Phe Ser Gly Thr Leu Val Leu
225                 230                 235                 240
Ile Asn Gly Asp Lys Gly Glu Ile Thr Phe Asn Pro Gln Leu Ser Thr
                245                 250                 255
Ile Gln Thr Tyr Tyr Arg Lys Gln Ala Ser Val Ser Val Thr Val Pro
            260                 265                 270
Val Gln Val Gln Thr Gly Lys Asn Leu Pro Leu Ile Ser Leu Ser Ala
        275                 280                 285
Gln Ile Val Ser Thr Glu Glu Leu Pro Met Ile Glu Arg Glu Ser Pro
    290                 295                 300
Gly Thr Ser Val Gly Leu Phe Arg Ser Glu Phe Met Ala Phe Ser Leu
305                 310                 315                 320
Gly Arg Leu Pro Cys Val Glu Glu Gln Ala Asp Gln Tyr Ala Gln Leu
                325                 330                 335
Val Gln Phe Gln Cys Ser Asp Ile His Val Leu Arg Leu Phe Asp Phe
            340                 345                 350
Gly Glu Asp Lys Glu Cys Pro Cys Ile Ser Ser Ser His Arg Ser Val
        355                 360                 365
Arg Trp Leu Leu Glu Gln Glu Lys Val Leu Lys Glu Gln Leu Gln Ala
    370                 375                 380
Ile Ala Ile Val Ser Arg Ile Gly Arg Leu Lys Val Leu Ile Pro Gly
385                 390                 395                 400
Val Ile Asp Ala Ser Glu Ile Ala Leu Val Lys Arg Leu Phe Gln Glu
                405                 410                 415
Glu Ile Arg Leu Leu Lys Gly Ile Ser Glu Asn Ile Leu Trp Gly Ser
            420                 425                 430
Met Ile Glu Ile Pro Ser Ala Val Trp Met Ile Glu Glu Ile Leu Gln
        435                 440                 445
Glu Ser Ser Phe Val Ala Leu Gly Thr Asn Asp Leu Ala Gln Tyr Thr
    450                 455                 460
Leu Gly Thr Ser Arg Glu Arg Ser Leu Leu Gly Glu Arg Ser Arg Val
465                 470                 475                 480
Pro His Pro Ser Val Ile Arg Met Ile His His Val Val Glu Gln Ala
                485                 490                 495
Lys Gln Lys Asn Val Pro Val Ser Val Cys Gly Glu Met Ala Gly Asp
            500                 505                 510
Pro Ala Leu Leu Pro Met Phe Leu Gly Leu Gly Val Lys Glu Leu Ser
        515                 520                 525
```

```
Ala Val Ile Pro Ala Ile Asn Ser Leu Lys Met Arg Leu Leu Asp Leu
    530                 535                 540
Asn Ser Arg Glu Cys Ser Arg Leu Thr Lys Gln Leu Leu Arg Ala Lys
545                 550                 555                 560
Thr Tyr Glu Glu Val His Gln Leu Leu Tyr Val
                565                 570
<210>94
<211>105
<212>PRT
<213>Chlamydia trachomatis
<400>94
Met Gly Ser Gly Tyr Ala Lys Lys Lys Lys Glu Ala Lys Leu Met Glu
  1               5                  10                  15
Arg Gln Phe Met Glu Met Glu Ala Ser Leu Glu Gln Lys Arg Phe Ser
            20                  25                  30
Gly Glu Ala Gly Asn Gly Leu Val Ser Val Thr Ile Asn Gly Lys Cys
        35                  40                  45
Asp Leu Val Asp Val Arg Ile Lys Pro Asp Cys Leu Asp Pro Glu Asp
    50                  55                  60
Pro Glu Val Val Ala Asp Leu Phe Arg Ala Asp Leu Lys Gln Leu Lys
65                  70                  75                  80
Gln Leu Trp Ile Val Lys Cys Pro Leu Cys Lys Trp Glu Cys Arg Ser
                85                  90                  95
Asn Phe Phe Arg Tyr Thr Tyr Arg Ser
            100                 105
<210>95
<211>216
<212>PRT
<213>Chlamydia trachomatis
<400>95
Pro Ile Ser Thr Cys Arg Ser His Tyr Tyr Pro Lys Leu Arg Thr Ser
  1               5                  10                  15
Val Thr Pro Val Ser Asp Ala Met Gln Met Gly Val Ala Pro Ala His
            20                  25                  30
Phe Leu Gln Asp Val Thr Leu Leu Phe Arg Ser Phe Leu Leu Lys Gln
        35                  40                  45
Tyr Ser Lys Gln Phe His Ser Val Ala Thr Lys Tyr Ser Ser Glu Ile
    50                  55                  60
Leu Leu Glu Ile Leu Asp Phe Leu Gly Glu Ser Ala Arg His Ile Asn
65                  70                  75                  80
Leu Ala Leu Phe Glu Lys Thr Phe Leu Glu Thr Val Ile Ile Arg Leu
                85                  90                  95
Leu Arg Ile Tyr Ser Arg Pro Thr Phe Ser Gln Leu Val Ser Gln Ile
            100                 105                 110
Arg Gln Pro Ala Pro Thr Gln Ile Arg Pro Ile Pro Thr Ala Ser Glu
        115                 120                 125
Leu Glu Ser Cys Pro Pro Gln Ile Lys Ser Ser Asn Thr Glu Glu Thr
    130                 135                 140
Lys Ser Ser Pro Gln Pro Thr Ala Val Ala Lys Leu Ser Gln Gly Ser
145                 150                 155                 160
Leu Leu Thr Ala Ala Ser Ser Gln Thr Lys Lys Glu Thr Ile His Gln
                165                 170                 175
Glu Thr Pro Pro Pro Ser Leu Asp Lys Ile Ser Pro Ser Glu Ser Ala
            180                 185                 190
Ala Ile Asp Thr Leu Leu Gln Phe Ala Val Val Glu Phe Ser Gly Val
        195                 200                 205
Leu Thr Lys Glu Pro Lys His Gly
    210                 215
<210>96
<211>265
<212>PRT
```

<213>Chlamydia trachomatis
<400>96
Asp Leu Leu Ser Ser Phe Phe Lys Lys Val Pro Pro Glu Gln Phe Phe
1 5 10 15
Arg Asp Ser Trp Pro Gly Tyr Ser Arg Val Tyr Thr Gln Glu Phe Pro
20 25 30
Ala Ser Glu Ser Arg Arg His Ala Tyr Ile Phe Ser Gly Ile Arg Gly
35 40 45
Thr Gly Lys Thr Thr Leu Ala Arg Val Phe Ala Lys Ala Leu Asn Cys
50 55 60
Gln Asn Pro Thr Gln Asp Gln Glu Pro Cys Asn Gln Cys Ala Ile Cys
65 70 75 80
Lys Glu Ile Ser Leu Gly Thr Ser Met Asp Val Ile Glu Ile Asp Gly
85 90 95
Ala Ser His Arg Gly Ile Glu Asp Ile Arg Gln Ile Asn Glu Thr Val
100 105 110
Leu Phe Val Pro Ser Lys Ser Arg Tyr Lys Ile Tyr Ile Ile Asp Glu
115 120 125
Val His Met Leu Thr Lys Glu Ala Phe Asn Ser Leu Leu Lys Thr Leu
130 135 140
Glu Glu Pro Pro Ala His Val Lys Phe Phe Leu Ala Thr Thr Glu Ile
145 150 155 160
Ala Lys Ile Pro Asn Thr Ile Ser Ser Arg Cys Gln Lys Met Leu Leu
165 170 175
Lys Arg Ile Ser Glu Glu Thr Ile Ile Asp Lys Leu Ala Thr Ile Ala
180 185 190
Lys Gln Glu Gly Thr Glu Thr Ser Arg Glu Ala Leu Leu Pro Ile Ala
195 200 205
Lys Ala Ala Gln Gly Ser Leu Arg Asp Ala Glu Ser Leu Tyr Asp Tyr
210 215 220
Val Val Gly Leu Phe Pro Glu Ser Leu Asp Pro Asp Ser Thr Ala Lys
225 230 235 240
Ala Leu Gly Ile Leu Ser Glu Asp Ser Leu Tyr Gln Leu Ala Glu Ala
245 250 255
Ile Thr Thr Gln Asn Tyr Glu Gln Ala
260 265
<210>97
<211>258
<212>PRT
<213>Chlamydia trachomatis
<400>97
His Leu Arg Thr Cys Cys Ala Ile Leu Glu Lys Asp Pro Ser Val Phe
1 5 10 15
Ser Glu Ile Ile Phe Leu Asp Ser Tyr Pro Gln Ile Ala Ser Ser Arg
20 25 30
Ser Asp Ile Ser Thr Tyr Phe Asp Ile Ala Pro Ser Leu Arg Asn Phe
35 40 45
Tyr Ala Ser Leu Thr Gln Ala Lys Ala Leu Asn Ile Ser Val Ser Met
50 55 60
Phe Ser Pro Asn Thr Lys Gln Gly Gln Cys Ser Asp Cys Trp Gly Leu
65 70 75 80
Gly Tyr Gln Trp Ile Asp Arg Ala Phe Tyr Ala Met Glu Lys Arg Pro
85 90 95
Cys Pro Thr Cys Gly Gly Phe Arg Val Gln Pro Leu Ile Gln Glu Val
100 105 110
Val Tyr Glu Gly Lys His Phe Gly Gln Leu Leu Gln Ala Ser Leu Asn
115 120 125
Glu Val Ala Glu Thr Phe Ser Phe Leu Lys Lys Ile Gln Lys Pro Leu
130 135 140
His Thr Leu Ile Thr Asn Gly Leu Gly Tyr Leu Ser Leu Gly Gln Asn
145 150 155 160

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```
Met Ala Ser Leu Ser Leu Ser Glu Lys Ile Ala Ile Lys Leu Thr Lys
                165                 170                 175
His Leu Phe Leu Pro Pro Lys His Pro Thr Leu Phe Leu Leu Asp Glu
            180                 185                 190
Ile Ala Thr Ser Leu Asp Asn Gln Gln Gln Ser Ala Leu Leu Val Gln
        195                 200                 205
Leu Asn Thr Leu Val Ser Leu Gly His Thr Val Val Ile Ile Glu Asn
    210                 215                 220
His Pro Ala Phe Ser Gln Gln Ala Asp Phe Trp Ile Gln Met Gly Arg
225                 230                 235                 240
Lys Thr Asp Asn His Ile Leu Phe Ala Gly Pro Asn Pro Asn Leu Ser
                245                 250                 255
Phe Thr
```

<210>98
<211>189
<212>PRT
<213>Chlamydia trachomatis
<400>98

```
Ile Gly Leu Leu Asp Arg Val Gly Leu Gly Tyr Val Ile Leu Gly Gln
  1               5                  10                  15
Glu Gln Gln Ser Leu Ser Asp Gly Glu His Tyr Arg Leu Leu Leu Ala
            20                  25                  30
Lys Ala Phe Ser Ser Gly Leu Thr Asp Val Ile Tyr Leu Leu Glu Asp
        35                  40                  45
Pro Leu Ala Gly Ile His Pro Glu Asp Ala Pro Cys Leu Leu Ala Val
    50                  55                  60
Ile Lys Lys Leu Val Thr Asn His Asn Thr Val Ile Val Thr Asp Arg
65                  70                  75                  80
Glu Gly Ser Leu Ala Glu His Ala Asp Tyr Leu Leu His Leu Gly Pro
                85                  90                  95
Glu Pro Gly Pro Asn Gly Gly Tyr Leu Leu Ser Thr Ser Ala Leu Lys
            100                 105                 110
Gln Ser Gln Pro Val Leu Cys Asn Thr Arg Ser Ser Glu Glu Thr Pro
        115                 120                 125
Gln Leu Ser Val Ser Val Ser Thr Ser Met Ile Gln Ile Glu Asn Leu
    130                 135                 140
Ala Phe Pro Leu Gln Arg Leu Ser Thr Ile Ser Gly Val Ser Gly Ser
145                 150                 155                 160
Gly Lys Thr Thr Leu Leu Asn Ser Ile Tyr Glu His Ala Ala Leu Phe
                165                 170                 175
Leu Lys Arg Ile Leu Leu Tyr Ser Gln Lys Leu Phe Phe
            180                 185
```

<210>99
<211>1224
<212>PRT
<213>Chlamydia trachomatis
<400>99

```
Asn Ser Cys His Ser Arg Trp Asn Ser Thr Asp Phe Ala Arg Ser Ser
  1               5                  10                  15
Ser Arg Gln Asp Val Leu Thr Val Arg Glu Cys Leu Arg Gln Gly Phe
            20                  25                  30
Thr Lys Val Leu Ile Asp Glu Glu Val Val Pro Ile His Lys Phe Leu
        35                  40                  45
Thr Thr Gly Ile Pro Val Pro Gly Gln Leu Ile Val Asp Thr Leu Ile
    50                  55                  60
Lys Asn Thr Ser Asn Thr Pro Arg Leu Lys Val Ser Leu Phe Thr Thr
65                  70                  75                  80
Leu Asp Ile Gly His Gly Glu Cys Ser Leu His Phe Asp Asn Gln Lys
                85                  90                  95
Arg Val Phe Ser Thr Gln Ala Thr Leu Pro Glu Thr Gln Gln Thr Tyr
```

```
                100                 105                 110
Ala Pro Leu Ser Pro Asp Leu Phe Ser Ser His Ser His Lys Asp Arg
        115                 120                 125
Cys Pro Gln Cys Gln Gly Ser Gly Ile Phe Ile Ser Ile Asp Asp Pro
    130                 135                 140
Cys Ile Ile Gln Gln Thr Leu Ser Ile Glu Asp Asn Cys Cys Pro Phe
145                 150                 155                 160
Ala Gly Asn Cys Ser Thr Phe Leu Tyr Arg Thr Ile Tyr Gln Ser Leu
                165                 170                 175
Ala Asp Ser Leu Gly Phe Ser Leu Ser Thr Pro Trp Gln Asn Leu Ser
            180                 185                 190
Pro Glu Ile Gln His Ile Phe Leu Tyr Gly Lys Glu Gly Leu Ser Ile
        195                 200                 205
Pro Val Lys Leu Phe Asp Gly Thr Leu Gly Lys Lys Thr Gln Thr His
    210                 215                 220
Lys Gln Trp Lys Gly Val Leu Asn Glu Ile Gly Glu Lys Ile Arg Phe
225                 230                 235                 240
Ser Asn Lys Pro Ala Arg Tyr Leu Pro Lys Gly Thr Ser Tyr Thr Val
                245                 250                 255
Cys Pro Arg Cys Asn Lys Thr Gly Leu Ser Asp Tyr Ala Asn Ala Thr
            260                 265                 270
Arg Trp His Gly Lys Ser Phe Ala Asp Phe Gln Gln Met Ser Leu Gln
        275                 280                 285
Glu Leu Phe Ile Phe Leu Asn Gln Leu Pro Lys Lys Glu Leu Ala Ile
    290                 295                 300
Glu Glu Val Ile Gln Gly Phe Lys Ser Arg Leu Ala Ile Leu Ile Asp
305                 310                 315                 320
Leu Gly Leu Pro Tyr Leu Ser Pro Glu Arg Ala Ile Asp Thr Leu Ser
                325                 330                 335
Gly Gly Glu Arg Glu Arg Thr Ala Leu Ala Lys His Leu Gly Ala Glu
            340                 345                 350
Leu Ile Gly Val Met Tyr Ile Leu Asp Glu Pro Ser Ile Gly Leu His
        355                 360                 365
Pro Gln Asp Thr His Lys Leu Met Asn Val Ile Arg Arg Leu Arg Asp
    370                 375                 380
Gln Gly Asn Thr Val Leu Leu Val Glu His Asp Glu Gln Met Ile Ser
385                 390                 395                 400
Leu Ala Asp Arg Val Ile Asp Ile Gly Pro Gly Ala Gly Ile Phe Gly
                405                 410                 415
Gly Glu Val Val Phe Asn Gly Ser Pro Arg Glu Phe Leu Ala Lys Ser
            420                 425                 430
Asp Ser Leu Thr Ala Gln Tyr Leu Arg Gln Glu Gln His Ile Ser Val
        435                 440                 445
Pro Ala Lys Arg Thr Asn Ser Leu Gly Thr Ile Thr Leu Ser Lys Ala
    450                 455                 460
Asn Lys His Asn Leu Lys Asp Leu Thr Val Ser Ile Pro Leu Gly Gln
465                 470                 475                 480
Met Thr Val Val Thr Gly Val Ser Gly Ser Gly Lys Ser Ser Leu Ile
                485                 490                 495
Asn Asp Thr Leu Val Pro Cys Val Glu Glu Phe Ile Glu Gln Gly Phe
            500                 505                 510
Cys Ser Thr Leu Ser Ile Gln Gly Ala Leu Ser Arg Leu Val His Ile
        515                 520                 525
Asn Arg Asp Leu Pro Gly Arg Ser Gln Arg Ser Ile Pro Leu Thr Tyr
    530                 535                 540
Ile Lys Ala Phe Asp Glu Val Arg Gln Leu Phe Ala Glu Gln Pro Arg
545                 550                 555                 560
Cys Lys Thr Leu Gly Leu Thr Lys Ser His Phe Ser Phe Asn Thr Pro
                565                 570                 575
Leu Gly Ala Cys Ala Glu Cys Gly Gly Leu Gly Ser Ile Thr Thr Thr
            580                 585                 590
```

```
Asp Asn Arg Asp Ser Ile Thr Cys Pro Ser Cys Leu Gly Lys Arg Phe
        595                 600                 605
Leu Pro Gln Val Leu Glu Val Arg Tyr Lys Asn Lys Thr Ile Ala Asp
    610                 615                 620
Ile Leu Glu Met Thr Ala Tyr Glu Ala Lys Asn Phe Phe Leu Asp Glu
625                 630                 635                 640
Pro Ser Ile His Gln Lys Ile Glu Thr Leu Cys Thr Leu Gly Leu Gln
                645                 650                 655
Tyr Leu Pro Leu Gly Arg Pro Leu Tyr Ser Leu Ser Gly Gly Glu Ile
            660                 665                 670
Gln Arg Leu Lys Leu Ala Tyr Glu Leu Leu Ala Pro Val Lys His Pro
        675                 680                 685
Thr Leu Tyr Val Leu Asp Glu Pro Thr Thr Gly Leu His Thr His Asp
    690                 695                 700
Val Lys Gln Leu Ile Tyr Val Val Gln Ser Leu Ile His Gln Gly His
705                 710                 715                 720
Ser Val Ile Ile Ile Glu His Asn Met His Val Val Lys Val Ala Asp
                725                 730                 735
Tyr Ile Leu Glu Leu Gly Pro Glu Gly Gly Asn Lys Gly Gly Tyr Leu
            740                 745                 750
Ile Ala Ser Cys Ser Pro Glu Glu Leu Ile His Lys His Thr Pro Thr
        755                 760                 765
Ala Ile Ala Leu Arg Pro Phe Leu Ser Ser Pro Gln Glu Leu Pro Tyr
    770                 775                 780
Leu Pro Asp Pro Ser Pro Lys Pro Pro Val Pro Ala Ala Ile Thr Ile
785                 790                 795                 800
Ala Asn Ala His Gln Tyr Asn Leu Lys His Ile Asp Leu Ser Ile Pro
                805                 810                 815
Arg Tyr Ala Leu Thr Ala Val Thr Gly Pro Ser Ala Ser Gly Lys His
            820                 825                 830
Ser Leu Val Phe Asp Ile Leu His Ala Ala Gly Asn Ile Ala Tyr Ala
        835                 840                 845
Glu Leu Phe Pro Pro Tyr Ile Arg Gln Ala Leu Ile Lys Lys Thr Pro
    850                 855                 860
Leu Pro Ala Val Asp Lys Val Thr Gly Leu Ser Pro Val Ile Ala Ile
865                 870                 875                 880
Glu Lys Thr Ser Ala Ser Arg Asn Ser Asn His Ser Val Ala Ser Ala
                885                 890                 895
Leu Glu Ile Ser Glu Met Leu Glu Ser Leu Phe Thr Arg Ile Gly His
            900                 905                 910
Pro Tyr Ser Pro Ile Ser Gly Asp Ala Leu Arg Thr Ile Ser Pro Glu
        915                 920                 925
Thr Ile Ala Glu Glu Leu Leu Thr His Tyr Thr Lys Gly Tyr Val Thr
    930                 935                 940
Ile Thr Val Pro Phe Pro Lys Glu Glu Glu Phe Phe Ser Tyr Thr Gln
945                 950                 955                 960
Glu Met Leu Gln Glu Gly Phe Leu Lys Leu Tyr Ala Asn Glu Gln Phe
                965                 970                 975
Tyr Asp Leu Asp Gly Pro Phe Pro Thr Ser Leu Glu Asn Pro Ala Leu
            980                 985                 990
Val Ile His His Val Lys Ile Leu Glu Lys Asn Leu Pro Ser Leu Leu
        995                 1000                1005
Ala Ser Leu Thr Leu Ala Phe Ser Lys Ala Ser Ser Val Cys Leu His
    1010                1015                1020
Ile Glu Tyr Ala Gly Thr Ser Leu Ser Lys Thr Tyr Arg Gln Gly Leu
1025                1030                1035                1040
Gln Asp Ala Ser Gly Asn Leu Phe Pro Asn Ile Glu Thr Pro Ser Ile
                1045                1050                1055
Leu Asn His Glu Ser Tyr Leu Cys Pro Leu Cys His Gly Lys Gly Phe
            1060                1065                1070
Leu Ser Thr Cys Ser Ile Leu Pro His Lys Lys Arg Phe Ala Gln His
```

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        1075                1080                1085
Thr Pro Ile Ser Leu Phe Thr Ser Leu Phe Pro Asn Gln Asp Pro Ser
    1090                1095                1100
Pro Ile Tyr Pro Leu Leu Asn Glu Leu Gly Ile Pro Ser Ile Ala Leu
1105                1110                1115                1120
Phe Gln Glu Ile Asp Val Leu Ser Phe Glu Ser Leu Cys Leu Gly Thr
                1125                1130                1135
Gln Gln His Leu Gly Leu Asn Ala Leu Cys Thr Lys Ala Met Leu Met
            1140                1145                1150
Glu Ser Glu Glu Asp Phe Pro Pro Asp Leu Ile Ser Lys Thr Pro Cys
        1155                1160                1165
Asn Gln Cys Gln Gly Leu Gly Val Tyr Thr Tyr Lys His Cys Ile Arg
    1170                1175                1180
Ile His Ser Ile Ser Leu Ser Glu Ile Tyr Gln Ser Asn Val Ala Phe
1185                1190                1195                1200
Leu Lys Lys Leu Leu Leu Ser Val Glu Glu Glu Pro Ser Leu Val Gln
                1205                1210                1215
Asp Ile Leu Ser Arg Leu Ala Phe
            1220
<210>100
<211>201
<212>PRT
<213>Chlamydia trachomatis
<400>100
Met Ser Ser Ile Val Arg Leu Ser Gly Ile Thr Val Arg Asn Leu Lys
  1               5                  10                  15
Asn Ile Thr Val Glu Phe Cys Pro Arg Glu Ile Val Leu Phe Thr Gly
             20                  25                  30
Val Ser Gly Ser Gly Lys Ser Ser Leu Ala Phe Asn Thr Ile Tyr Ala
         35                  40                  45
Ala Gly Arg Lys Arg Tyr Leu Ala Thr Leu Pro Ser Phe Phe Ala Thr
     50                  55                  60
Lys Leu Asp Ser Leu Pro Asp Pro Ser Val Lys Lys Ile Glu Gly Leu
 65                  70                  75                  80
Ser Pro Thr Val Ala Val Lys Gln Asn Phe Phe Glu Gln His Val His
                 85                  90                  95
Ala Thr Val Gly Ser Thr Thr Glu Ile Asn Ser Tyr Leu Ala Leu Leu
            100                 105                 110
Phe Ser Leu Glu Gly Gln Ala Tyr Asp Pro Val Thr Leu His Pro Leu
        115                 120                 125
Thr Leu Tyr Ser Lys Glu Lys Ile Leu Ser Glu Ile Ala Ala Ile Pro
    130                 135                 140
Asp Gly Thr Gln Leu Thr Leu Leu Ala Pro Leu Pro Ala Arg Met Phe
145                 150                 155                 160
Leu Pro Phe Glu Asn Val Ser Val Lys Gly Leu Pro Lys Ser Ser Leu
                165                 170                 175
Met Lys Arg Leu Phe Leu Phe Ile Ser Phe Leu Gln Gln Ala Phe Leu
            180                 185                 190
Phe Pro Val Asn Ser Leu Ser Ile Arg
        195                 200
<210>101
<211>496
<212>PRT
<213>Chlamydia trachomatis
<400>101
Ile Phe Tyr Ser Leu Ile Pro Val Ser Arg Phe Met Ile Ala Arg Thr
  1               5                  10                  15
Lys Ile Ile Cys Thr Ile Gly Pro Ala Thr Asn Thr Pro Glu Met Leu
             20                  25                  30
Glu Lys Leu Leu Asp Ala Gly Met Asn Val Ala Arg Leu Asn Phe Ser
         35                  40                  45
```

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His Gly Thr His Glu Ser His Gly Arg Thr Ile Ala Ile Leu Lys Glu
     50                  55                  60
Leu Arg Glu Lys Arg Gln Val Pro Leu Ala Ile Met Leu Asp Thr Lys
 65                  70                  75                  80
Gly Pro Glu Ile Arg Leu Gly Gln Val Glu Ser Pro Ile Lys Val Gln
                 85                  90                  95
Pro Gly Asp Arg Leu Thr Leu Val Ser Lys Glu Ile Leu Gly Ser Lys
            100                 105                 110
Glu Ser Gly Val Thr Leu Tyr Pro Ser Cys Val Phe Pro Tyr Val Arg
        115                 120                 125
Glu Arg Ala Pro Val Leu Ile Asp Asp Gly Tyr Ile Gln Ala Val Val
    130                 135                 140
Val Asn Ala Gln Glu His Met Val Glu Ile Glu Phe Gln Asn Ser Gly
145                 150                 155                 160
Glu Ile Lys Ser Asn Lys Ser Leu Ser Ile Lys Asp Ile Asp Val Ala
                165                 170                 175
Leu Pro Phe Met Thr Glu Lys Asp Ile Ala Asp Leu Lys Phe Gly Val
            180                 185                 190
Glu Gln Glu Leu Asp Leu Ile Ala Ala Ser Phe Val Arg Cys Asn Glu
        195                 200                 205
Asp Ile Asp Ser Met Arg Lys Val Leu Glu Ser Phe Gly Arg Pro Asn
    210                 215                 220
Met Pro Ile Ile Ala Lys Ile Glu Asn His Leu Gly Val Gln Asn Phe
225                 230                 235                 240
Gln Glu Ile Ala Arg Ala Ala Asp Gly Ile Met Ile Ala Arg Gly Asp
                245                 250                 255
Leu Gly Ile Glu Leu Ser Ile Val Glu Val Pro Gly Leu Gln Lys Phe
            260                 265                 270
Met Ala Arg Ala Ser Arg Glu Thr Gly Arg Phe Cys Ile Thr Ala Thr
        275                 280                 285
Gln Met Leu Glu Ser Met Ile Arg Asn Pro Leu Pro Thr Arg Ala Glu
    290                 295                 300
Val Ser Asp Val Ala Asn Ala Ile Tyr Asp Gly Thr Ser Ala Val Met
305                 310                 315                 320
Leu Ser Gly Glu Thr Ala Ser Gly Ala His Pro Val His Ala Val Lys
                325                 330                 335
Thr Met Arg Ser Ile Ile Gln Glu Thr Glu Lys Thr Phe Asp Tyr His
            340                 345                 350
Ala Phe Phe Gln Leu Asn Asp Lys Asn Ser Ala Leu Lys Val Ser Pro
        355                 360                 365
Tyr Leu Glu Ala Ile Gly Phe Ser Gly Ile Gln Ile Ala Glu Lys Ala
    370                 375                 380
Ser Ala Lys Ala Ile Ile Val Tyr Thr Gln Thr Gly Gly Ser Pro Met
385                 390                 395                 400
Phe Leu Ser Lys Tyr Arg Pro Tyr Leu Pro Ile Ile Ala Val Thr Pro
                405                 410                 415
Asn Arg Asn Val Tyr Tyr Arg Leu Ala Val Glu Trp Gly Val Tyr Pro
            420                 425                 430
Met Leu Thr Leu Glu Ser Asn Arg Thr Val Trp Arg His Gln Ala Cys
        435                 440                 445
Val Tyr Gly Val Glu Lys Gly Ile Leu Ser Asn Tyr Asp Lys Ile Leu
    450                 455                 460
Val Phe Ser Arg Gly Ala Gly Met Gln Asp Thr Asn Asn Leu Thr Leu
465                 470                 475                 480
Thr Thr Val His Asp Ala Leu Ser Pro Ser Leu Asp Glu Ile Val Pro
                485                 490                 495
<210>102
<211>337
<212>PRT
<213>Chlamydia trachomatis
<400>102
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```
Lys Arg Pro Ile Arg Tyr His Gly Val Lys Ala His Phe Gln Asn Thr
  1               5                  10                  15
Ser Leu Lys Lys Thr Ser Gly Asn Val Glu Leu Gln Thr Pro Ile Ser
            20                  25                  30
Phe Pro Gln His Ala Gly Asn Ile Leu Cys Arg Leu Gly Lys Lys Tyr
        35                  40                  45
Pro Gln Leu Gln Val Val Thr Pro Ala Met Ser Leu Gly Ser Cys Leu
    50                  55                  60
Glu Asp Phe Arg Lys Gln Phe Pro Asp Arg Phe Thr Asp Val Gly Ile
65                  70                  75                  80
Ala Glu Gly His Ala Val Thr Phe Ser Ala Gly Ile Ala Arg Ser Gly
                85                  90                  95
Thr Pro Val Cys Cys Ser Ile Tyr Ser Thr Phe Leu His Arg Ala Met
            100                 105                 110
Asp Asn Val Phe His Asp Val Cys Met Gln Glu Leu Pro Val Ile Phe
        115                 120                 125
Ala Ile Asp Arg Ala Gly Leu Ala Phe His Asp Gly Arg Ser His His
    130                 135                 140
Gly Ile Tyr Asp Leu Gly Phe Leu Cys Ser Met Pro Asn Met Val Ile
145                 150                 155                 160
Cys Gln Pro Arg Asn Ala Leu Val Leu Glu Arg Leu Phe Phe Ser Ser
                165                 170                 175
Leu Leu Trp Lys Ser Pro Cys Ala Ile Arg Tyr Pro Asn Ile Pro Ala
            180                 185                 190
Asn Glu Lys Ala Ser Asn Ser Ser Phe Pro Phe Ser Pro Ile Leu Pro
        195                 200                 205
Gly Glu Ala Glu Ile Leu Cys Gln Gly Asp Asp Leu Leu Leu Ile Ala
    210                 215                 220
Leu Gly His Met Cys Asn Thr Ala Leu Thr Val Lys Glu His Leu Leu
225                 230                 235                 240
Asp Tyr Gly Ile Ser Thr Thr Val Val Asp Pro Ile Phe Ile Lys Pro
                245                 250                 255
Leu Asp Arg Lys Leu Leu Gln Ser Leu Leu Thr His His Ser Lys Val
            260                 265                 270
Ile Ile Leu Glu Glu His Ser Ile His Gly Gly Leu Gly Ser Glu Phe
        275                 280                 285
Leu Leu Phe Leu Asn Gln His Asn Ile Lys Ala Asp Val Leu Ser Leu
    290                 295                 300
Gly Val Pro Asp Met Xaa Ile Pro His Gly Asn Pro Glu Leu Phe Lys
305                 310                 315                 320
Phe Asp Trp Thr His Gln Arg Ser His His Ser Thr Asn Pro Phe Ser
                325                 330                 335
Phe
```

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<210>103
<211>296
<212>PRT
<213>Chlamydia trachomatis
<400>103

```
Met Thr Tyr Ser Leu Leu Pro His Ile His Ser Pro Gln Asp Leu His
  1               5                  10                  15
Ala Leu Ser Leu Asp Lys Leu Pro Val Leu Cys Asp Glu Ile Arg Asn
            20                  25                  30
Lys Ile Ile Glu Ser Leu Ser Leu Thr Gly Gly His Leu Ala Ser Asn
        35                  40                  45
Leu Gly Gly Val Glu Leu Thr Val Ala Leu His Tyr Val Phe Ser Ser
    50                  55                  60
Pro Asp Asp Gln Phe Ile Phe Asp Val Gly His Gln Ser Tyr Val His
65                  70                  75                  80
Lys Leu Leu Thr Gly Arg Asn Thr Glu Ala Phe Ser Asn Ile Arg His
                85                  90                  95
```

Asp Asn Gly Leu Ser Gly Phe Thr Thr Pro Gln Glu Ser Asn His Asp
100 105 110
Ile Phe Phe Ser Gly His Ala Gly Asn Ala Leu Ser Leu Ala Leu Gly
115 120 125
Leu Ala Lys Gly Ser Ser Asn Ser Ser Ser His Ile Leu Pro Ile Leu
130 135 140
Gly Asp Ala Ala Phe Ser Cys Gly Leu Thr Leu Glu Ala Leu Asn Asn
145 150 155 160
Ile Pro Ala Asp Leu Ser Lys Phe Ile Ile Val Leu Asn Asp Asn Gln
165 170 175
Met Ser Ile Ser Glu Asn Val Gly Asn Ile Pro Gln Gly Ile Ser Gln
180 185 190
Trp Ile Tyr Pro Gln Lys Ile Ser Lys Leu Ser Gln Lys Ile His Ser
195 200 205
Trp Ile Gln Asn Leu Pro Ser Phe Leu His Lys Lys Lys Thr Leu Ser
210 215 220
His Lys Val Asp Ile Ala Leu Lys Ser Leu Ser His Pro Leu Phe Glu
225 230 235 240
Gln Phe Gly Leu His Tyr Val Gly Pro Ile Asp Gly His Asn Val Lys
245 250 255
Lys Leu Val Gln Ala Leu Gln Met Ile Lys Asp Gln Pro Gln Pro Ile
260 265 270
Leu Phe His Val Cys Thr Val Lys Gly Asn Gly Leu Thr Glu Ala Glu
275 280 285
Arg Asp Arg Phe Ala Ile Met Glu
290 295

<210>104
<211>92
<212>PRT
<213>Chlamydia trachomatis
<400>104
Pro Val Met Gln Glu Ile Ser Val Pro Glu Ala Ser His Leu Asp Thr
1 5 10 15
Val Ile Gln Arg Leu Leu Val Leu Gln Lys Ala Leu Glu Asp Cys His
20 25 30
Ser Val Glu Ala Ile Leu Ala Ile Tyr Glu Glu Met Phe Ser Leu Ile
35 40 45
Gln Glu Gly Glu Thr Asn Leu Asn His Val Glu Gln Leu Ser Phe Gln
50 55 60
Leu Gln Leu Asn Pro Asp Gly Ser Val Ala Val Asp Thr Ser Gly Asn
65 70 75 80
Pro Ile Lys His Pro Phe Ile Pro Gly Glu Ser Val
85 90

<210>105
<211>530
<212>PRT
<213>Chlamydia trachomatis
<400>105
Leu Glu Glu Pro Leu Tyr Leu Gln Arg Ile Ser Tyr Pro Leu Tyr Asn
1 5 10 15
Lys Ser Ile Ser His Asn Ser His Val Pro Met Ser Ile Thr Ser Pro
20 25 30
Pro Ile Glu Val Ser Val Leu Thr Asp Ser Ile Lys Asn Leu Leu Glu
35 40 45
Lys Asn Phe Leu Arg Val Val Val Lys Gly Glu Leu Ser Asn Val Ser
50 55 60
Leu Gln Thr Ser Gly His Leu Tyr Phe Ala Ile Lys Asp Ser Lys Ala
65 70 75 80
Val Leu Asn Gly Ala Phe Phe His Phe Arg Ser Lys Tyr Phe Asp Arg
85 90 95
Lys Pro Lys Asp Gly Asp Tyr Val Ile Leu His Gly Lys Leu Thr Val

09/530,646 - 04/06/00

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                100                 105                 110
Tyr Ala Pro Arg Gly Gln Tyr Gln Ile Val Ala Tyr Ala Leu Thr Phe
            115                 120                 125
Ser Gly Glu Gly Asn Leu Leu Gln Gln Phe Glu Glu Arg Lys Gln Arg
    130                 135                 140
Leu Ala Ala Glu Gly Tyr Phe Asp Pro Lys Arg Lys Lys Pro Leu Pro
145                 150                 155                 160
Ser Gly Ala Arg Val Ile Gly Val Ile Thr Ser Pro Thr Gly Ala Val
                165                 170                 175
Ile Gln Asp Ile Leu Arg Val Leu Ser Arg Arg Cys His Gln Phe Gln
            180                 185                 190
Val Ile Leu Tyr Pro Val Thr Val Gln Gly Ala Thr Ala Ala Gln Glu
        195                 200                 205
Ile Ser Gln Ala Ile Gln Phe Phe Asn Gln Asn Ser Met Arg Val His
    210                 215                 220
Ala Leu Ile Ile Ala Arg Gly Gly Gly Ser Ile Glu Asp Leu Trp Ala
225                 230                 235                 240
Phe Asn Glu Glu Glu Leu Val Lys Ser Ile Val Ala Ser Ser Ile Pro
                245                 250                 255
Ile Ile Ser Ala Val Gly His Glu Thr Asp Phe Thr Leu Cys Asp Phe
            260                 265                 270
Ala Ser Asp Val Arg Ala Pro Thr Pro Ser Ala Ala Ala Glu Ile Val
        275                 280                 285
Cys Lys Ser Ser Asp Gln Tyr Arg Gln Glu Leu Gln Asn Leu Arg Arg
    290                 295                 300
Tyr Val Ser Ser His Ala Arg Gln Phe Ile Ala Ala Lys Lys Asn Leu
305                 310                 315                 320
Leu Thr His Trp Gln Arg His Leu Ala Ser Val Asp Phe Tyr His Thr
                325                 330                 335
Ala Gln Gln Thr Leu Asp Tyr Thr Arg Ala Ala Leu Glu Arg Gly Ile
            340                 345                 350
Glu Thr Lys Leu Glu Tyr Tyr Lys Gln Arg Phe Ala Gln Tyr Arg Arg
        355                 360                 365
Trp Leu Lys Ser Asp Val Leu Ile Arg Ile Glu Lys His Leu Ala Asp
    370                 375                 380
Leu Asn Gln Ser Leu Met Leu Ser Ile Lys Asn Lys Ile Tyr Thr Lys
385                 390                 395                 400
Lys Thr Ser Leu Asn Gln Leu Tyr Thr Ser Cys Leu Lys Asn Glu Leu
                405                 410                 415
Leu Asn Leu Gln His Arg Thr Gln His Ser Arg Asn Ile Leu Ser Gln
            420                 425                 430
Leu Ser Arg Arg Leu His Ile Ala Ile Ala Ser Ser Gln Gln Thr His
        435                 440                 445
Gln Glu Cys Leu Val Arg Leu Gln Asn Glu Leu Ser Phe Thr Ile Gln
    450                 455                 460
His Leu Leu Thr Lys Ala Lys Glu Arg Cys Gln Ala Ile Gln Glu Gln
465                 470                 475                 480
Ala Ser Ser Leu Asn Pro Lys Asn Val Leu Lys Arg Gly Phe Ala Gln
                485                 490                 495
Leu Phe Asp Phe Asn Lys His Phe Val Ile Ile Ser Ala Glu Ser Leu
            500                 505                 510
Lys Gln Ser Asp Leu Val Arg Ser Ala Ser Lys Thr Val Lys Gln Leu
        515                 520                 525
Tyr Gln
    530
<210>106
<211>274
<212>PRT
<213>Chlamydia trachomatis
<400>106
Met Phe Thr Asp Lys Glu Thr His Arg Lys Pro Phe Pro Thr Trp Ala
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  1               5                  10                  15
His Leu Leu His Ser Glu Pro Ser Lys Gln Phe Val Phe Gly Asn Trp
            20                  25                  30
Lys Met Asn Lys Thr Leu Thr Glu Ala Gln Thr Phe Leu Lys Ser Phe
        35                  40                  45
Leu Ser Ser Asp Ile Leu Ser Asn Pro Gln Ile Ile Thr Gly Ile Ile
    50                  55                  60
Pro Pro Phe Thr Leu Leu Ser Ala Cys Gln Gln Ala Val Ser Asp Ser
65                  70                  75                  80
Pro Ile Phe Leu Gly Ala Gln Thr Thr His Glu Ala Asp Ser Gly Ala
                85                  90                  95
Phe Thr Gly Glu Ile Ser Ala Pro Met Leu Lys Asp Ile Gly Val Asp
            100                 105                 110
Phe Val Leu Ile Gly His Ser Glu Arg Arg His Ile Phe His Glu Gln
        115                 120                 125
Asn Pro Val Leu Ala Glu Lys Ala Ala Ala Ala Ile His Ser Gly Met
    130                 135                 140
Ile Pro Val Leu Cys Ile Gly Glu Thr Leu Glu Glu Gln Glu Ser Gly
145                 150                 155                 160
Ala Thr Gln Asp Ile Leu Leu Asn Gln Leu Thr Ile Gly Leu Ser Lys
                165                 170                 175
Leu Pro Glu Gln Ala Ser Phe Ile Leu Ala Tyr Glu Pro Val Trp Ala
            180                 185                 190
Ile Gly Thr Gly Lys Val Ala His Pro Asp Leu Val Gln Glu Thr His
        195                 200                 205
Ala Phe Cys Arg Lys Thr Ile Ala Ser Leu Phe Ser Lys Asp Ile Ala
    210                 215                 220
Glu Arg Thr Pro Ile Leu Tyr Gly Gly Ser Val Lys Ala Asp Asn Ala
225                 230                 235                 240
Arg Ser Leu Ser Leu Cys Pro Asp Val Asn Gly Leu Leu Val Gly Gly
                245                 250                 255
Ala Ser Leu Ser Ser Glu Asn Phe Leu Ser Ile Ile Gln Gln Ile Asp
            260                 265                 270
Ile Pro
```

<210>107
<211>212
<212>PRT
<213>Chlamydia trachomatis
<400>107

```
Pro Leu Cys Cys Met Lys Val Lys Ile Cys Gly Ile Thr His Pro Asp
  1               5                  10                  15
Asp Ala Arg Glu Ala Ala Lys Ala Gly Ala Asp Tyr Ile Gly Met Ile
            20                  25                  30
Phe Ala Lys Asp Ser Arg Arg Cys Val Ser Glu Glu Lys Ala Lys Tyr
        35                  40                  45
Ile Val Glu Ala Ile Gln Glu Gly Asn Ser Glu Pro Val Gly Val Phe
    50                  55                  60
Pro Glu His Ser Val Glu Glu Ile Leu Ala Ile Thr Glu Ala Thr Gly
65                  70                  75                  80
Ile Thr Ser Ile Gln Leu Ser Gly Glu Asp Ile Leu Phe Lys Phe Ser
                85                  90                  95
Gln Leu Arg Glu His Phe Ser Ile Phe Tyr Val Val Ser Val Tyr Ser
            100                 105                 110
Asn Gly Gln Pro Ser Ala Ala Leu Pro Pro Met Asn Asp Ala Val Thr
        115                 120                 125
Val Val Tyr Asp His Ile Gly Gly Glu Arg Gly Ser Pro Phe Asp Trp
    130                 135                 140
Lys Ala Phe Ser Pro Phe Gln His Asn Asn Trp Met Leu Gly Gly Gly
145                 150                 155                 160
Val Asn Leu Trp Asn Ile Lys Glu Gly Ile Ser Leu Leu Asn Pro Arg
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                165                 170                 175
Gly Ile Asp Val Ser Ser Gly Val Glu Arg Pro Gly Ile Leu Arg Lys
            180                 185                 190
Asp Ile Phe Leu Met Gln Ala Leu Ile Asn Ser Ala Lys Glu Leu Ser
        195                 200                 205
Ser Ser Thr Leu
    210
<210>108
<211>344
<212>PRT
<213>Chlamydia trachomatis
<400>108
Arg Thr Arg Gly Gly Gly Leu Phe Ser Asn Phe Cys Ser Ser Pro Thr
  1                 5                  10                  15
Val Gln Ala Leu Leu Arg Ala Trp Asp Arg Phe Phe Ser Arg Val Ser
            20                  25                  30
Asp Gly Arg Phe Leu Gln Ile Tyr Tyr Gly Asp Gly Gly Leu Phe Val
        35                  40                  45
Glu Arg Ala Leu Gln Leu Ile Ser Cys Pro Leu Gln Arg Ala Arg Ile
    50                  55                  60
Arg Val Val Gly Ile Asn Pro Ser Phe Phe Val Thr Val Ser Asp Asn
65                  70                  75                  80
Arg His Phe Tyr Thr Ser Pro Gly Ser Cys Gly Arg Ile Leu Asp Met
                85                  90                  95
Ser Gly Tyr Leu Ser Ala Arg Arg Asp Gly Cys Val Ser His Val Pro
            100                 105                 110
Phe Ser Pro His Ser Gln Ser Ile Thr Pro Gly Val Gly Asp Ala Cys
        115                 120                 125
Phe Glu Leu Gly Leu Arg Met Glu Phe Met Arg Leu Ala Gly Leu Ser
    130                 135                 140
Ser Leu Ser Ala Ala Ser Ser Pro Thr Ser Glu Asp Ser Asp Ser Ser
145                 150                 155                 160
Arg Leu Gln Leu Val Arg Val Val Ser Ser Glu Asp Ser Val Ala Phe
                165                 170                 175
Ala Arg Leu Tyr Ala Ala Leu Asn Glu Asp Ile Thr Ser Ser Val Arg
            180                 185                 190
Ala Ala Asn Pro Phe Pro Phe Ser Tyr Val Arg Leu Ile Leu Leu Leu
        195                 200                 205
Thr Thr Leu Cys Arg His Thr Leu Thr Thr Thr Lys Ala Ala Tyr Ser
    210                 215                 220
Tyr Thr Pro Ala Ser Trp Glu Ala Leu Asp Met Leu Asp Ser Gly Phe
225                 230                 235                 240
Thr Ala Ser Tyr Val Gly Gly Val Leu Ser Glu Ile Phe Leu Leu Cys
                245                 250                 255
Thr His Ser Pro Arg Arg Ala Gln Arg Ser Arg Met Leu Arg Met Leu
            260                 265                 270
Ala Lys Leu Phe Ser Ser Trp Ala Trp Leu Val Gly Val Met Glu Leu
        275                 280                 285
Ser Cys Gly Tyr Gly Val Thr Ile Gln Leu Leu Leu Gln Asn Asp Pro
    290                 295                 300
Arg Gln Ser Cys Leu Arg Asn Leu Phe Phe Trp Met Glu Ser Thr Leu
305                 310                 315                 320
Thr Pro Val Ile Leu Leu Asp Ile Ala Glu Arg Ile Gly Leu Pro Tyr
                325                 330                 335
Gly Ile Glu Leu Leu Asp Trp Ala
            340
<210>109
<211>97
<212>PRT
<213>Chlamydia trachomatis
<400>109
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```
Leu Lys Ile Ala Arg Asp Met Ser Arg Ser Ser Leu Gln Gln Tyr Leu
  1               5                  10                  15
Tyr Thr Lys Ser Thr Val Ile Ala Asn Ser Thr Thr Pro Ser Leu Asn
             20                  25                  30
Asn Thr Ser Thr Cys Ser Gly Asn Ser Thr Thr Arg Pro Val Leu Pro
         35                  40                  45
Ser Ile Thr Gly Ile Tyr Glu Thr Asp Val Gln Thr Thr Gly Val Ala
     50                  55                  60
Arg Thr Leu Asn Val Ile Arg Met Ile Trp Cys Gly Val Met Leu Leu
 65                  70                  75                  80
Tyr Phe Leu Tyr Thr Ala Phe Arg Leu Val Arg Asn Ala Arg Arg Arg
                 85                  90                  95
Asn

<210>110
<211>149
<212>PRT
<213>Chlamydia trachomatis
<400>110
Thr Met Ile Leu Thr Thr Pro Ser Glu His Lys Ala Cys Leu Glu Lys
  1               5                  10                  15
Gln Glu Lys Ala Val Ala Leu Leu Phe Pro Glu Asn Phe Val Lys Asp
             20                  25                  30
Thr Phe Tyr Lys Gln Leu Leu Gln Ile Gly Arg Thr Ala Lys Pro Phe
         35                  40                  45
Pro Lys Glu Phe Leu Thr Lys Glu Asn Leu Val Leu Gly Cys Gln Ser
     50                  55                  60
Asp Leu Tyr Leu His Gly Glu Phe Lys Asn Asn Ala Val Phe Phe Phe
 65                  70                  75                  80
Thr Tyr Thr Glu Ala Leu Ile Ser Ser Gly Val Ala Val Leu Phe Ser
                 85                  90                  95
Asp Ile Tyr Ser Gly Glu Thr Pro Glu Thr Ile Leu Thr Cys Lys Pro
            100                 105                 110
Leu Phe Phe Glu Lys Leu Ser Arg His Leu Ser Met Gly Arg Ser Arg
        115                 120                 125
Gly Gly Glu Ser Leu Phe Leu Asn Met Gln Arg Ile Ala Val Gln Tyr
    130                 135                 140
Leu Ala Arg Lys Thr
145
<210>111
<211>221
<212>PRT
<213>Chlamydia trachomatis
<400>111
Ala Met Val Lys Ala Ala His Pro Leu His Ser Ser Ile Ser Gly Ala
  1               5                  10                  15
Leu Pro Leu His Ser Ser Arg Gly Gly Ala Tyr His Asp Ser Leu Gly
             20                  25                  30
Asp Leu His Ser Pro Ile Ser Leu Thr Pro Pro Ala Leu Ser Val Leu
         35                  40                  45
Thr Pro Glu Pro Ala Gln Ser Lys Ser Arg Val Gln Ala Val Ala Asn
     50                  55                  60
Thr Ile Gly Asp Phe Leu Gln Arg Asn Trp Lys His Leu Leu Leu Tyr
 65                  70                  75                  80
Ile Leu Ala Trp Ser Leu Ile Leu Ile Cys His Ser Ser Val Ala Leu
                 85                  90                  95
Val Leu Ser Ile Trp Leu Gly Ile Gly Phe Gly Ala Gly Val Val Leu
            100                 105                 110
Gly Ile Ile Ser Ala Asn Phe Leu Asp Lys Glu Asn Lys Tyr Pro His
        115                 120                 125
Leu Asn Ser Leu Trp Asn Ile Thr Asn His Gly Leu Gln Gln Leu Asp
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    130                 135                 140
Pro Asn Gly Thr Arg Gln Val Leu Leu Ala Thr Val Ile Ala Ser Ile
145                 150                 155                 160
Ser Ala Leu Ile Tyr Ala Ser Pro Gln Ala Ile Gly Phe Ile Ile Gly
                165                 170                 175
Ala Phe Leu Gly His Gln Thr Ser Ser Leu Ala Val Tyr Gly Tyr Arg
            180                 185                 190
Phe Lys Ser Gly Gln Asp Ile Leu Gln Ile Arg Asn Cys Leu Ile Asn
        195                 200                 205
Lys Lys Asn Glu Phe Asp Lys Pro Ser Cys Ser Val Gly
    210                 215                 220
<210>112
<211>397
<212>PRT
<213>Chlamydia trachomatis
<400>112
Leu Arg Ile Phe Glu Met Ser Lys Glu Thr Phe Gln Arg Asn Lys Pro
  1               5                  10                  15
His Ile Asn Ile Gly Thr Ile Gly His Val Asp His Gly Lys Thr Thr
            20                  25                  30
Leu Thr Ala Ala Ile Thr Arg Thr Leu Ser Gly Asp Gly Leu Ala Asp
        35                  40                  45
Phe Arg Asp Tyr Ser Ser Ile Asp Asn Thr Pro Glu Glu Lys Ala Arg
    50                  55                  60
Gly Ile Thr Ile Asn Ala Ser His Val Glu Tyr Glu Thr Ala Asn Arg
65                  70                  75                  80
His Tyr Ala His Val Asp Cys Pro Gly His Ala Asp Tyr Val Lys Asn
                85                  90                  95
Met Ile Thr Gly Ala Ala Gln Met Asp Gly Ala Ile Leu Val Val Ser
            100                 105                 110
Ala Thr Asp Gly Ala Met Pro Gln Thr Lys Glu His Ile Leu Leu Ala
        115                 120                 125
Arg Gln Val Gly Val Pro Tyr Ile Val Val Phe Leu Asn Lys Ile Asp
    130                 135                 140
Met Ile Ser Glu Glu Asp Ala Glu Leu Val Asp Leu Val Glu Met Glu
145                 150                 155                 160
Leu Ala Glu Leu Leu Glu Glu Lys Gly Tyr Lys Gly Cys Pro Ile Ile
                165                 170                 175
Arg Gly Ser Ala Leu Lys Ala Leu Glu Gly Asp Ala Ala Tyr Ile Glu
            180                 185                 190
Lys Val Arg Glu Leu Met Gln Ala Val Asp Asp Asn Ile Pro Thr Pro
        195                 200                 205
Glu Arg Glu Ile Asp Lys Pro Phe Leu Met Pro Ile Glu Asp Val Phe
    210                 215                 220
Ser Ile Ser Gly Arg Gly Thr Val Thr Gly Arg Ile Glu Arg Gly Ile
225                 230                 235                 240
Val Lys Val Ser Asp Lys Val Gln Leu Val Gly Arg Asp Thr Lys Glu
                245                 250                 255
Thr Ile Val Thr Gly Val Glu Met Phe Arg Lys Glu Leu Pro Glu Gly
            260                 265                 270
Arg Ala Gly Glu Asn Val Gly Leu Leu Leu Arg Gly Ile Gly Lys Asn
        275                 280                 285
Asp Val Glu Arg Gly Met Val Val Cys Leu Pro Asn Ser Val Lys Pro
    290                 295                 300
His Thr Arg Phe Lys Cys Ala Val Tyr Val Leu Gln Lys Glu Glu Gly
305                 310                 315                 320
Gly Arg His Lys Pro Phe Phe Thr Gly Tyr Arg Pro Gln Phe Phe Phe
                325                 330                 335
Arg Thr Thr Asp Val Thr Gly Val Val Thr Leu Pro Glu Gly Val Glu
            340                 345                 350
Met Val Met Pro Gly Asp Asn Val Glu Phe Glu Val Gln Leu Ile Ser
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09604-6050-PCT

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        355                 360                 365
Pro Val Ala Leu Glu Glu Gly Met Arg Phe Ala Ile Arg Glu Gly Gly
    370                 375                 380
Arg Thr Ile Gly Ala Gly Thr Ile Ser Lys Ile Ile Ala
385                 390                 395
<210>113
<211>183
<212>PRT
<213>Chlamydia trachomatis
<400>113
Phe Met Phe Lys Trp Tyr Val Val Gln Val Phe Thr Ala Gln Glu Lys
  1               5                  10                  15
Lys Val Lys Lys Ser Leu Glu Asp Phe Lys Glu Ala Ser Gly Met Ser
            20                  25                  30
Asp Phe Ile Gln Gln Ile Ile Leu Pro Ser Glu Asn Val Met Glu Val
        35                  40                  45
Lys Lys Gly Glu His Lys Ile Val Glu Lys Tyr Ile Trp Pro Gly Tyr
    50                  55                  60
Leu Leu Val Lys Met His Leu Thr Asp Glu Ser Trp Ser Tyr Val Lys
65                  70                  75                  80
Lys Thr Gln Gly Val Val Glu Phe Leu Gly Gly Gly Ala Pro Val Ala
                85                  90                  95
Leu Ser Glu Glu Glu Ile Lys Asn Ile Leu Ala Asp Leu Glu Glu Lys
            100                 105                 110
Lys Ser Gly Val Val Gln Lys His Lys Phe Glu Val Gly Ser Gln Val
        115                 120                 125
Lys Ile Asn Asp Gly Val Phe Val Asn Phe Val Gly Val Val Ser Glu
    130                 135                 140
Val Phe His Asp Lys Gly Arg Leu Ser Val Met Val Ser Ile Phe Gly
145                 150                 155                 160
Arg Glu Thr Arg Val Asp Asp Leu Glu Phe Trp Gln Val Glu Glu Val
                165                 170                 175
Val Pro Gly Gln Glu Ser Glu
            180
<210>114
<211>143
<212>PRT
<213>Chlamydia trachomatis
<400>114
Leu Asn Met Ser Asn Lys Lys Ile Ile Lys Ile Ile Lys Leu Gln Ile
  1               5                  10                  15
Pro Gly Gly Lys Ala Asn Pro Ala Pro Pro Ile Gly Pro Ala Leu Gly
            20                  25                  30
Ala Ala Gly Val Asn Ile Met Gly Phe Cys Lys Glu Phe Asn Ala Ala
        35                  40                  45
Thr Gln Asp Arg Pro Gly Asp Leu Leu Pro Val Val Ile Thr Val Tyr
    50                  55                  60
Ser Asp Lys Thr Xaa Ser Phe Val Met Lys Gln Ser Pro Val Ser Ser
65                  70                  75                  80
Leu Ile Lys Lys Ala Leu Gly Leu Glu Ser Gly Ser Lys Ile Pro Asn
                85                  90                  95
Arg Asn Lys Val Gly Lys Leu Thr Arg Ala Gln Ile Thr Ala Ile Ala
            100                 105                 110
Glu Gln Lys Met Lys Asp Met Asp Val Val Leu Leu Glu Ser Ala Glu
        115                 120                 125
Arg Met Val Glu Gly Thr Ala Arg Ser Met Gly Val Asp Val Glu
    130                 135                 140
<210>115
<211>195
<212>PRT
<213>Chlamydia trachomatis
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<400>115
Met Thr Lys His Gly Lys Arg Ile Arg Gly Ile Gln Glu Thr Tyr Asp
1 5 10 15
Leu Ala Lys Ser Tyr Ser Leu Gly Glu Ala Ile Asp Ile Leu Lys Gln
20 25 30
Cys Pro Thr Val Arg Phe Asp Gln Thr Val Asp Val Ser Val Lys Leu
35 40 45
Gly Ile Asp Pro Arg Lys Ser Asp Gln Gln Ile Arg Gly Ser Val Ser
50 55 60
Leu Pro His Gly Thr Gly Lys Val Leu Arg Ile Leu Val Phe Ala Ala
65 70 75 80
Gly Asp Lys Ala Ala Glu Ala Ile Glu Ala Gly Ala Asp Phe Val Gly
85 90 95
Ser Asp Asp Leu Val Glu Lys Ile Lys Gly Gly Trp Val Asp Phe Asp
100 105 110
Val Ala Val Ala Thr Pro Asp Met Met Arg Glu Val Gly Lys Leu Gly
115 120 125
Lys Val Leu Gly Pro Arg Asn Leu Met Pro Thr Pro Lys Ala Gly Thr
130 135 140
Val Thr Thr Asp Val Val Lys Thr Ile Ala Glu Leu Arg Lys Gly Lys
145 150 155 160
Ile Glu Phe Lys Ala Asp Arg Ala Gly Val Cys Asn Val Gly Val Ala
165 170 175
Asn Phe Leu Ser Ile Val Arg Lys Ser Lys Lys Met Leu Lys Arg Cys
180 185 190
Val Gln Pro
195
<210>116
<211>178
<212>PRT
<213>Chlamydia trachomatis
<400>116
Leu Ser Leu Lys Arg Lys Asn Glu Arg Arg Glu Lys Val Ala Leu Arg
1 5 10 15
Glu Val Glu Glu Lys Ile Thr Ala Ser Gln Gly Phe Ile Leu Leu Arg
20 25 30
Tyr Leu Gly Phe Thr Ala Thr His Ser Arg Ser Phe Arg Asn Asn Leu
35 40 45
Ser Gly Val Ser Ala Glu Phe Glu Val Leu Lys Lys Lys Ile Phe Phe
50 55 60
Lys Ala Leu Glu Thr Ser Gly Val Glu Met Asp Pro Glu Asp Ser Glu
65 70 75 80
Gly His Leu Gly Val Val Phe Ala Tyr Gly Asp Pro Val Ser Ala Ala
85 90 95
Lys Gln Val Leu Asp Phe Asn Lys Gln His Asn Asp Ser Leu Val Phe
100 105 110
Leu Ala Gly Arg Ile Asp Asn Ala Ser Leu Ser Gly Arg Glu Val Glu
115 120 125
Ala Val Ala Lys Leu Pro Ser Met Lys Glu Leu Arg Gln Gln Val Val
130 135 140
Gly Leu Ile Ala Ala Pro Met Ser Gln Val Val Gly Ile Met Asn Ser
145 150 155 160
Val Leu Ser Gly Val Val Ser Cys Val Asp Gln Lys Ala Glu Lys Thr
165 170 175
Gln Glu

<210>117
<211>105
<212>PRT
<213>Chlamydia trachomatis
<400>117

```
Lys Ile Ile Gly Arg Lys Val Gly Arg Tyr Ala Ala Ala Pro Val Val
  1               5                  10                  15
Ala Val Ala Gly Ala Ala Ala Ala Gly Asp Ala Pro Ala Ser Ala Glu
            20                  25                  30
Pro Thr Glu Phe Ala Val Ile Leu Glu Asp Val Pro Ser Asp Lys Lys
        35                  40                  45
Ile Gly Val Leu Lys Val Val Arg Glu Val Thr Gly Leu Ala Leu Lys
    50                  55                  60
Glu Ala Lys Glu Met Thr Glu Gly Leu Pro Lys Thr Val Lys Glu Lys
65                  70                  75                  80
Thr Ser Lys Ser Asp Ala Glu Asp Thr Val Lys Lys Leu Gln Glu Ala
                85                  90                  95
Gly Ala Lys Ala Val Ala Lys Gly Leu
            100                 105
```

<210>118
<211>1258
<212>PRT
<213>Chlamydia trachomatis
<400>118

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Ser Leu Arg Arg Ala Arg Met Phe Lys Cys Pro Glu Arg Val Ser Val
  1               5                  10                  15
Lys Lys Lys Glu Asp Ile Leu Asp Leu Pro Asn Leu Val Glu Val Gln
            20                  25                  30
Ile Lys Ser Tyr Lys Gln Phe Leu Gln Ile Gly Lys Leu Ala Glu Glu
        35                  40                  45
Arg Glu Asn Ile Gly Leu Glu Glu Val Phe Arg Glu Ile Phe Pro Ile
    50                  55                  60
Lys Ser Tyr Asn Glu Ala Thr Ile Leu Glu Tyr Leu Ser Tyr Asn Leu
65                  70                  75                  80
Gly Val Pro Lys Tyr Ser Pro Glu Glu Cys Ile Arg Arg Gly Ile Thr
                85                  90                  95
Tyr Ser Val Thr Leu Lys Val Arg Phe Arg Leu Thr Asp Glu Thr Gly
            100                 105                 110
Ile Lys Glu Glu Glu Val Tyr Met Gly Thr Ile Pro Ile Met Thr Asp
        115                 120                 125
Lys Gly Thr Phe Ile Ile Asn Gly Ala Glu Arg Val Val Val Ser Gln
    130                 135                 140
Val His Arg Ser Pro Gly Ile Asn Phe Glu Gln Glu Lys His Ser Lys
145                 150                 155                 160
Gly Asn Val Leu Phe Ser Phe Arg Ile Ile Pro Tyr Arg Gly Ser Trp
                165                 170                 175
Leu Glu Ala Val Phe Asp Ile Asn Asp Leu Ile Tyr Ile His Ile Asp
            180                 185                 190
Arg Lys Lys Arg Arg Arg Lys Ile Leu Ala Met Thr Phe Ile Arg Ala
        195                 200                 205
Leu Gly Tyr Ser Thr Asp Ala Asp Ile Ile Glu Glu Phe Phe Ser Val
    210                 215                 220
Glu Glu Arg Ser Leu Arg Ser Glu Lys Asp Phe Val Ala Leu Val Gly
225                 230                 235                 240
Lys Val Leu Ala Asp Asn Val Val Asp Ala Asp Ser Ser Leu Val Tyr
                245                 250                 255
Gly Lys Ala Gly Glu Lys Leu Ser Thr Ala Met Leu Lys Arg Ile Leu
            260                 265                 270
Asp Thr Gly Val Gln Ser Leu Lys Ile Ala Val Gly Ala Asp Glu Asn
        275                 280                 285
His Pro Ile Ile Lys Met Leu Ala Lys Asp Pro Thr Asp Ser Tyr Glu
    290                 295                 300
Ala Ala Leu Lys Asp Phe Tyr Arg Arg Leu Arg Pro Gly Glu Pro Ala
305                 310                 315                 320
Thr Leu Ala Asn Ala Arg Ser Thr Ile Met Arg Leu Phe Phe Asp Ala
                325                 330                 335
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Lys Arg Tyr Asn Leu Gly Arg Val Gly Arg Tyr Lys Leu Asn Lys Lys
            340                 345                 350
Leu Gly Phe Pro Leu Asp Asp Glu Thr Leu Ser Gln Val Thr Leu Arg
        355                 360                 365
Lys Glu Asp Val Ile Gly Ala Leu Lys Tyr Leu Ile Arg Leu Arg Met
    370                 375                 380
Gly Asp Glu Lys Thr Ser Ile Asp Asp Ile Asp His Leu Ala Asn Arg
385                 390                 395                 400
Arg Val Arg Ser Val Gly Glu Leu Ile Gln Asn His Cys Arg Ser Gly
                405                 410                 415
Leu Ala Arg Met Glu Lys Ile Val Arg Glu Arg Met Asn Leu Phe Asp
            420                 425                 430
Phe Ser Ser Asp Thr Leu Thr Pro Gly Lys Ile Ile Ser Ala Lys Gly
        435                 440                 445
Leu Val Ser Val Leu Lys Asp Phe Phe Ser Arg Ser Gln Leu Ser Gln
    450                 455                 460
Phe Met Asp Gln Thr Asn Pro Val Ala Glu Leu Thr His Lys Arg Arg
465                 470                 475                 480
Leu Ser Ala Leu Gly Pro Gly Gly Leu Asn Arg Glu Arg Ala Gly Phe
                485                 490                 495
Glu Val Arg Asp Val His Ala Ser His Tyr Gly Arg Ile Cys Pro Ile
            500                 505                 510
Glu Thr Pro Glu Gly Pro Asn Ile Gly Leu Ile Thr Ser Leu Ser Ser
        515                 520                 525
Phe Ala Lys Ile Asn Glu Phe Gly Phe Ile Glu Thr Pro Tyr Arg Val
    530                 535                 540
Val Arg Asp Gly Ile Val Thr Asp Glu Ile Glu Tyr Met Thr Ala Asp
545                 550                 555                 560
Val Glu Glu Glu Cys Val Ile Ala Gln Ala Ser Ala Glu Leu Asp Glu
                565                 570                 575
Tyr Asn Met Phe Lys Thr Pro Val Cys Trp Ala Arg Tyr Lys Gly Glu
            580                 585                 590
Ala Phe Glu Ala Asp Thr Ser Thr Val Thr His Met Asp Val Ser Pro
        595                 600                 605
Lys Gln Leu Val Ser Val Val Thr Gly Leu Ile Pro Phe Leu Glu His
    610                 615                 620
Asp Asp Ala Asn Arg Ala Leu Met Gly Ser Asn Met Gln Arg Gln Ala
625                 630                 635                 640
Val Pro Leu Leu Lys Thr Glu Ala Ala Ile Val Gly Thr Gly Leu Glu
                645                 650                 655
Gly Arg Ala Ala Lys Asp Ser Gly Ala Ile Ile Val Ala Gln Glu Asp
            660                 665                 670
Gly Val Val Glu Tyr Val Asp Ser Tyr Glu Ile Val Val Ala Lys Lys
        675                 680                 685
Asn Asn Pro Thr Leu Lys Asp Arg Tyr Gln Leu Lys Lys Phe Leu Arg
    690                 695                 700
Ser Asn Ser Gly Thr Cys Ile Asn Gln Thr Pro Leu Cys Ser Val Gly
705                 710                 715                 720
Asp Val Val Thr His Gly Asp Val Leu Ala Asp Gly Pro Ala Thr Asp
                725                 730                 735
Lys Gly Glu Leu Ala Leu Gly Lys Asn Val Leu Val Ala Phe Met Pro
            740                 745                 750
Trp Tyr Gly Tyr Asn Phe Glu Asp Ala Ile Ile Ile Ser Glu Arg Leu
        755                 760                 765
Ile Lys Gln Asp Ala Tyr Thr Ser Ile Tyr Ile Glu Glu Phe Glu Leu
    770                 775                 780
Thr Ala Arg Asp Thr Lys Leu Gly Lys Glu Glu Ile Thr Arg Asp Ile
785                 790                 795                 800
Pro Asn Val Ser Glu Glu Val Leu Ala Asn Leu Gly Glu Asp Gly Ile
                805                 810                 815
Val Arg Ile Gly Ala Glu Val Lys Pro Gly Asp Ile Leu Val Gly Lys
```

US 6,924,143 B2

09/830,644

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            820                 825                 830
Ile Thr Pro Lys Ser Glu Thr Glu Leu Ala Pro Glu Glu Arg Leu Leu
        835                 840                 845
Arg Ala Ile Phe Gly Glu Lys Ala Ala Asp Val Lys Asp Ala Ser Leu
    850                 855                 860
Thr Val Pro Pro Gly Thr Glu Gly Val Val Met Asp Val Lys Val Phe
865                 870                 875                 880
Ser Arg Lys Asp Arg Leu Ser Lys Ser Asp Asp Glu Leu Val Glu Glu
                885                 890                 895
Ala Val His Leu Lys Asp Leu Gln Lys Glu Tyr Lys Ser Gln Leu Ala
            900                 905                 910
Gln Leu Lys Val Glu His Arg Glu Lys Leu Gly Ala Leu Leu Leu Asn
        915                 920                 925
Glu Lys Ala Pro Ala Ala Ile Val His Arg Arg Ser Ala Asp Ile Leu
    930                 935                 940
Val Gln Glu Gly Ala Ile Phe Asp Gln Glu Thr Ile Glu Leu Leu Glu
945                 950                 955                 960
Arg Glu Ser Leu Val Asp Leu Leu Ile Ala Pro Cys Asp Met Tyr Asp
                965                 970                 975
Val Leu Lys Asp Ile Leu Ser Ser Tyr Glu Thr Ala Val Gln Arg Leu
            980                 985                 990
Glu Val Asn Tyr Lys Thr Glu Ala Glu His Ile Lys Glu Gly Asp Ala
        995                 1000                1005
Asp Leu Asp His Gly Val Ile Arg Gln Val Lys Val Tyr Val Ala Ser
    1010                1015                1020
Lys Arg Lys Leu Gln Val Gly Asp Lys Met Ala Gly Arg His Gly Asn
1025                1030                1035                1040
Lys Gly Val Val Ser Lys Ile Val Pro Glu Ala Asp Met Pro Phe Leu
                1045                1050                1055
Ala Asn Gly Glu Thr Val Gln Met Ile Leu Asn Pro Leu Gly Val Pro
            1060                1065                1070
Ser Arg Met Asn Leu Gly Gln Val Leu Glu Thr His Leu Gly Tyr Ala
        1075                1080                1085
Ala Lys Thr Ala Gly Ile Tyr Val Lys Thr Pro Val Phe Glu Gly Phe
    1090                1095                1100
Pro Glu Ser Arg Ile Trp Asp Met Met Ile Glu Gln Gly Leu Pro Glu
1105                1110                1115                1120
Asp Gly Lys Ser Tyr Leu Phe Asp Gly Lys Thr Gly Glu Arg Phe Asp
                1125                1130                1135
Ser Lys Val Val Val Gly Tyr Ile Tyr Met Leu Lys Leu Ser His Leu
            1140                1145                1150
Ile Ala Asp Lys Ile His Ala Arg Ser Ile Gly Pro Tyr Ser Leu Val
        1155                1160                1165
Thr Gln Gln Pro Leu Gly Gly Lys Ala Gln Met Gly Gly Gln Arg Phe
    1170                1175                1180
Gly Glu Met Glu Val Trp Ala Leu Glu Ala Tyr Gly Val Ala His Met
1185                1190                1195                1200
Leu Gln Glu Ile Leu Thr Val Lys Ser Asp Asp Val Ser Gly Arg Thr
                1205                1210                1215
Arg Ile Tyr Glu Ser Ile Val Lys Gly Glu Asn Leu Leu Arg Ser Gly
            1220                1225                1230
Thr Pro Glu Ser Phe Asn Val Leu Ile Lys Glu Met Gln Gly Leu Gly
        1235                1240                1245
Leu Asp Val Arg Pro Met Val Val Asp Ala
    1250                1255
<210>119
<211>1396
<212>PRT
<213>Chlamydia trachomatis
<400>119
Met Phe Arg Glu Gly Ser Arg Asp Asp Ala Ala Leu Val Lys Glu Gly
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```
  1               5                  10                  15
Leu Phe Asp Lys Leu Glu Ile Gly Ile Ala Ser Asp Val Thr Ile Arg
            20                  25                  30
Asp Lys Trp Ser Cys Gly Glu Ile Lys Lys Pro Glu Thr Ile Asn Tyr
        35                  40                  45
Arg Thr Phe Lys Pro Glu Lys Gly Gly Leu Phe Cys Glu Lys Ile Phe
    50                  55                  60
Gly Pro Thr Lys Asp Trp Glu Cys Tyr Cys Gly Lys Tyr Lys Lys Ile
65                  70                  75                  80
Lys His Lys Gly Ile Val Cys Asp Arg Cys Gly Val Glu Val Thr Leu
                85                  90                  95
Ser Lys Val Arg Arg Glu Arg Met Ala His Ile Glu Leu Ala Val Pro
            100                 105                 110
Ile Val His Ile Trp Phe Phe Lys Thr Thr Pro Ser Arg Ile Gly Asn
        115                 120                 125
Val Leu Gly Met Thr Ala Ser Asp Leu Glu Arg Val Ile Tyr Tyr Glu
    130                 135                 140
Glu Tyr Val Val Ile Asp Pro Gly Asn Thr Asp Leu Val Lys Lys Gln
145                 150                 155                 160
Leu Leu Asn Asp Ala Lys Tyr Arg Glu Val Val Glu Lys Trp Gly Lys
                165                 170                 175
Asp Ala Phe Val Ala Lys Met Gly Gly Glu Ala Val Tyr Asp Leu Leu
            180                 185                 190
Lys Ser Glu Asp Leu Glu Ser Leu Leu Gly Glu Leu Lys Asp Arg Leu
        195                 200                 205
Arg Lys Thr Lys Ser Gln Gln Ala Arg Met Lys Leu Ala Lys Arg Leu
    210                 215                 220
Lys Ile Val Glu Gly Phe Val Ser Ser Ser Asn Arg Pro Glu Trp Met
225                 230                 235                 240
Val Leu Lys Asn Ile Pro Val Val Pro Pro Asp Leu Arg Pro Leu Val
                245                 250                 255
Pro Leu Asp Gly Gly Arg Phe Ala Thr Ser Asp Leu Asn Asp Leu Tyr
            260                 265                 270
Arg Arg Val Ile Asn Arg Asn Asn Arg Leu Lys Ala Ile Leu Arg Leu
        275                 280                 285
Lys Thr Pro Glu Val Ile Val Arg Asn Glu Lys Arg Met Leu Gln Glu
    290                 295                 300
Ala Val Asp Ala Leu Phe Asp Asn Gly Arg His Gly His Pro Val Met
305                 310                 315                 320
Gly Ala Gly Asn Arg Pro Leu Lys Ser Leu Ser Glu Met Leu Lys Gly
                325                 330                 335
Lys Asn Gly Arg Phe Arg Gln Asn Leu Leu Gly Lys Arg Val Asp Tyr
            340                 345                 350
Ser Gly Arg Ser Val Ile Ile Val Gly Pro Glu Leu Lys Phe Asn Gln
        355                 360                 365
Cys Gly Leu Pro Lys Glu Met Ala Leu Glu Leu Phe Glu Pro Phe Ile
    370                 375                 380
Ile Lys Arg Leu Lys Asp Gln Gly Ser Val Tyr Thr Ile Arg Ser Ala
385                 390                 395                 400
Lys Lys Met Ile Gln Arg Gly Ala Pro Glu Val Trp Asp Val Leu Glu
                405                 410                 415
Glu Ile Ile Lys Gly His Pro Val Leu Leu Asn Arg Ala Pro Thr Leu
            420                 425                 430
His Arg Leu Gly Ile Gln Ala Phe Glu Pro Val Leu Ile Glu Gly Lys
        435                 440                 445
Ala Ile Arg Val His Pro Leu Val Cys Ala Ala Phe Asn Ala Asp Phe
    450                 455                 460
Asp Gly Asp Gln Met Ala Val His Val Pro Leu Ser Ile Glu Ala Gln
465                 470                 475                 480
Leu Glu Ala Lys Val Leu Met Met Ala Pro Asp Asn Ile Phe Leu Pro
                485                 490                 495
```

```
Ser Ser Gly Lys Pro Val Ala Thr Pro Ser Lys Asp Met Thr Leu Gly
            500                 505                 510
Ile Tyr Tyr Leu Met Ala Asp Pro Thr Tyr Phe Pro Glu Glu His Gly
        515                 520                 525
Gly Lys Thr Lys Ala Phe Lys Asp Glu Val Glu Val Leu Arg Ala Leu
    530                 535                 540
Asn Ala Gly Gly Phe Ile Leu Lys Asp Glu Ile Cys Gly Ser Arg Arg
545                 550                 555                 560
Asp Glu Thr Gly Arg Gly Ile His Ile His Glu Lys Ile Lys Val Arg
                565                 570                 575
Ile Asp Gly Gln Ile Ile Glu Thr Thr Pro Gly Arg Val Phe Phe Asn
            580                 585                 590
Thr Ile Val Pro Lys Glu Leu Gly Phe Gln Asn Tyr Ser Met Pro Ser
        595                 600                 605
Lys Arg Ile Ser Glu Leu Ile Leu Gln Cys Tyr Lys Lys Val Gly Leu
    610                 615                 620
Glu Ala Thr Val Arg Phe Leu Asp Asp Leu Lys Glu Leu Gly Phe Val
625                 630                 635                 640
Gln Ser Thr Lys Ala Ala Ile Ser Met Gly Leu Lys Asp Val Lys Ile
                645                 650                 655
Pro Glu Ile Lys Lys Glu Ile Leu Lys Asp Ala Tyr Asp Lys Val Ala
            660                 665                 670
Ile Val Lys Lys Gln Tyr Glu Asp Gly Ile Ile Thr Asp Gly Glu Arg
        675                 680                 685
His Ser Lys Thr Ile Ser Ile Trp Thr Glu Val Ser Asp Leu Leu Ser
    690                 695                 700
Asn Ala Leu Tyr Ser Glu Ile Lys Lys Gln Thr Asn Ser Lys His Asn
705                 710                 715                 720
Pro Leu Phe Leu Met Val Xaa Ser Gly Ala Arg Gly Asn Lys Ser Gln
                725                 730                 735
Leu Lys Gln Leu Gly Ala Leu Arg Gly Leu Met Ala Lys Pro Asn Gly
            740                 745                 750
Ala Ile Ile Glu Ser Pro Ile Thr Ser Asn Phe Arg Glu Gly Leu Thr
        755                 760                 765
Val Leu Glu Tyr Ser Ile Ser Ser His Gly Ala Arg Lys Gly Leu Ala
    770                 775                 780
Asp Thr Ala His Lys Thr Ala Asp Ser Gly Tyr Leu Thr Arg Arg Leu
785                 790                 795                 800
Val Asp Val Ala Gln Asp Val Ile Ile Thr Glu Arg Asp Cys Gly Thr
                805                 810                 815
Leu Asn His Ile Glu Val Ser Thr Ile Arg Gln Gly Ser Glu Glu Leu
            820                 825                 830
Leu Pro Leu Lys Asp Arg Val Tyr Gly Arg Thr Val Ser Glu Asn Ile
        835                 840                 845
Tyr Gln Pro Gly Asp Lys Ser Asn Val Leu Ala Tyr Ala Gly Asp Val
    850                 855                 860
Leu Thr Ser Ala Gln Ala Glu Ala Ile Asp Asp Ala Gly Ile Glu Ser
865                 870                 875                 880
Val Lys Ile Arg Ser Thr Leu Thr Cys Glu Ser Arg Arg Gly Val Cys
                885                 890                 895
Ala Lys Cys Tyr Gly Leu Asn Leu Ala Asn Gly His Leu Ile Gly Leu
            900                 905                 910
Gly Glu Ala Val Gly Ile Ile Ala Ala Gln Ser Ile Gly Glu Pro Gly
        915                 920                 925
Thr Gln Leu Thr Met Arg Thr Phe His Leu Gly Gly Val Ala Ala Thr
    930                 935                 940
Ser Ser Thr Pro Glu Ile Val Ala Glu Cys Asp Gly Ile Leu Val Tyr
945                 950                 955                 960
Leu Asp Leu Arg Val Val Val Asp Gln Glu Gly Asn Asn Leu Val Leu
                965                 970                 975
Asn Lys Met Gly Ala Leu His Leu Val Gln Asp Glu Gly Arg Ser Leu
```

09/674,506

```
            980                 985                 990
Ser Glu Tyr Lys Lys Leu Leu Ser Thr Lys Ser Ile Glu Ser Leu Ala
        995                1000                1005
Thr Phe Pro Val Glu Leu Gly Ala Lys Ile Leu Val Asn Asp Gly Ala
    1010                1015                1020
Ala Val Thr Ala Gly Gln Arg Ile Ala Glu Val Glu Leu His Asn Ile
1025                1030                1035                1040
Pro Ile Ile Cys Asp Lys Pro Gly Phe Val His Tyr Glu Asp Leu Val
                1045                1050                1055
Glu Gly Val Ser Thr Glu Lys Val Ala Asn Lys Asn Thr Gly Leu Val
            1060                1065                1070
Glu Leu Ile Val Lys Gln His Arg Gly Glu Leu His Pro Gln Ile Ala
        1075                1080                1085
Ile Tyr Ala Asp Ala Asn Met Lys Glu Leu Val Gly Thr Tyr Ala Ile
    1090                1095                1100
Pro Ser Gly Ala Ile Ile Ser Val Glu Glu Gly Gln Arg Ile Ala Pro
1105                1110                1115                1120
Gly Met Leu Leu Ala Arg Leu Pro Arg Gly Ala Ile Lys Thr Lys Asp
                1125                1130                1135
Ile Thr Gly Gly Leu Pro Arg Val Ala Glu Leu Val Glu Ala Arg Lys
            1140                1145                1150
Pro Glu Asp Ala Ala Asp Ile Ala Lys Ile Asp Gly Val Val Asp Phe
        1155                1160                1165
Lys Gly Ile Gln Lys Asn Lys Arg Ile Leu Val Val Arg Asp Glu Ile
    1170                1175                1180
Thr Gly Met Glu Glu Glu His Leu Ile Ser Leu Thr Lys His Leu Ile
1185                1190                1195                1200
Val Gln Arg Gly Asp Ser Val Ile Lys Gly Gln Gln Leu Thr Asp Gly
                1205                1210                1215
Leu Val Val Pro His Glu Ile Leu Ala Ile Cys Gly Val Arg Glu Leu
            1220                1225                1230
Gln Lys Tyr Leu Val Asn Glu Val Gln Glu Val Tyr Arg Leu Gln Gly
        1235                1240                1245
Val Asp Ile Asn Asp Lys His Ile Glu Ile Ile Val Arg Gln Met Leu
    1250                1255                1260
Gln Lys Val Arg Ile Thr Asp Pro Gly Asp Thr Thr Leu Leu Phe Gly
1265                1270                1275                1280
Glu Asp Val Asp Lys Lys Glu Phe Tyr Glu Glu Asn Arg Arg Thr Glu
                1285                1290                1295
Glu Asp Gly Gly Lys Pro Ala Gln Ala Val Pro Val Leu Leu Gly Ile
            1300                1305                1310
Thr Lys Ala Ser Leu Gly Thr Glu Ser Phe Ile Ser Ala Ala Ser Phe
        1315                1320                1325
Gln Asp Thr Thr Arg Val Leu Thr Asp Ala Ala Cys Ser Ser Lys Thr
    1330                1335                1340
Asp Tyr Leu Leu Gly Phe Lys Glu Asn Val Ile Met Gly His Met Ile
1345                1350                1355                1360
Pro Gly Gly Thr Gly Phe Asp Thr His Lys Arg Ile Lys Gln His Leu
                1365                1370                1375
Glu Lys Glu Gln Glu Asp Leu Val Phe Asp Phe Asp Ser Glu Phe Glu
            1380                1385                1390
Ser Val Ala Gly
        1395
<210>120
<211>308
<212>PRT
<213>Chlamydia trachomatis
<400>120
Leu Asn Ser Ile Val Phe Phe Gly Arg Leu His Leu Glu Ser Lys Ile
  1               5                  10                  15
Asp Lys Val Phe Met Ser Ser Gln Phe Asp Gln Phe Lys Leu Trp Ser
```

```
            20                  25                  30
Val Leu Val Gly Asp Thr Gly Asp Pro Ala Leu Ile Lys Thr Leu Gly
        35                  40                  45
Val Gln Asp Ala Thr Thr Asn Pro Ser Leu Ile Leu Lys Val Ala Gln
    50                  55                  60
Glu Pro Lys Tyr Gln Ser Met Leu Thr Glu Ala Ile Ser Trp Gly Ile
65                  70                  75                  80
Arg Gln Asn Gly Asp Asp Val Gln Thr Leu Thr Phe Val Leu Asp Lys
                85                  90                  95
Ile Gln Val Asn Leu Gly Leu Glu Ile Leu Lys His Val Pro Gly Arg
            100                 105                 110
Val Ser Leu Glu Ile Asp Ala Arg Leu Ser Phe Asn Thr Glu Ala Met
        115                 120                 125
Val Gln Arg Ala Ile Phe Leu Ser Gln Leu Phe Glu Lys Met Gly Gly
    130                 135                 140
Asp Lys Lys Arg Leu Leu Val Lys Ile Pro Gly Thr Trp Glu Gly Ile
145                 150                 155                 160
Cys Ala Ala Glu Val Leu Glu Ser Gln Gly Ile Ala Cys Asn Val Thr
                165                 170                 175
Leu Ile Phe Asn Leu Val Gln Ala Ile Ala Ala Ala Lys Ala Lys Val
            180                 185                 190
Thr Leu Val Ser Pro Phe Val Gly Arg Ile Tyr Asp Trp Trp Ile Ala
        195                 200                 205
Ala Tyr Gly Ala Glu Gly Tyr Ser Ile Glu Ala Asp Pro Gly Val Ala
    210                 215                 220
Ser Val Ala Asn Ile Tyr Ser Tyr Tyr Lys Lys Phe Asp Ile Pro Thr
225                 230                 235                 240
Gln Ile Met Ala Ala Ser Phe Arg Thr Lys Glu Gln Val Leu Ala Leu
                245                 250                 255
Ala Gly Cys Asp Phe Leu Thr Val Ser Pro Lys Leu Leu Glu Glu Leu
            260                 265                 270
Lys Lys Asp Gln Gln Pro Val Glu Arg Lys Leu Ser Val Glu Glu Ala
        275                 280                 285
Lys Lys Ile Arg Tyr Ser Thr Cys Gly Val Val Arg Glu Cys Ile Ser
    290                 295                 300
Val Leu Asn Glu
305
<210>121
<211>78
<212>PRT
<213>Chlamydia trachomatis
<400>121
Lys Asn Ser Arg Lys Ile Ser Ser Leu Leu Lys Glu Ser Leu Ala Trp
  1               5                  10                  15
Lys Lys Arg Lys Lys Leu Asp Ile Gln Pro Val Glu Leu Ser Glu Ser
            20                  25                  30
Val Phe Arg Phe Leu Met Asn Glu Asp Ala Met Ala Thr Glu Lys Leu
        35                  40                  45
Ala Glu Gly Ile Arg Ile Phe Ser Gly Asp Thr Gln Ile Leu Glu Ser
    50                  55                  60
Ala Val Thr Glu Phe Ile Arg Gln Ile Ala Ala Gln Glu Ala
65                  70                  75
<210>122
<211>242
<212>PRT
<213>Chlamydia trachomatis
<400>122
Asn Gln Thr Leu Asn Leu Met Lys Arg Val Ile Leu Cys Ser Leu Leu
  1               5                  10                  15
Phe Ala Ser Phe Pro Ile Val Ser Lys Ala Ala Ala Glu Gly Lys Pro
            20                  25                  30
```

```
Leu Ser Arg Ala Ala Gln Leu Arg Glu Lys Arg Lys Asp Leu His Val
          35                  40                  45
Ser Arg Lys Pro Ser Pro Arg Tyr Ala Leu Lys Lys Arg Ala Leu Glu
      50                  55                  60
Ala Lys Lys Asn Arg Pro Ser Ile Ser Trp Ile Thr Tyr Ser Asn Ala
 65                  70                  75                  80
Thr Tyr Ser Phe Leu Ile Pro Asn Thr Trp Gln Cys Ile Asp Asp Lys
                 85                  90                  95
Thr Gln Leu Pro Glu Lys Leu Asp Val Leu Phe Ile Gly Lys Gly Ala
            100                 105                 110
Gly Gly Leu Thr Pro Thr Ile Asn Ser Ala His Glu Ile Ile His Lys
        115                 120                 125
Thr Glu Asp Ala Tyr Ile Glu Glu Ile Leu Asp Tyr His Arg Ala Asn
    130                 135                 140
Glu Asn Thr Leu Glu Ser Ser Ile Phe Ala His Ile Gln Ala Pro Ser
145                 150                 155                 160
Gly Lys Phe Thr Ile Ile Lys Thr Glu Lys Asn Thr Ser Trp Gly Arg
                165                 170                 175
Val Phe Cys Leu Gln Gly Val Thr Val Ile Asp His Thr Ala Tyr Ile
            180                 185                 190
Phe Thr Ser Thr Ser Thr Ile Asp Asp Tyr Pro Asn Val Ser Leu Ala
        195                 200                 205
Leu Leu Lys Ala Ala Ser Ser Phe Lys Leu Ser Glu Lys Glu Glu Ala
    210                 215                 220
Ala Arg Gly Asp Ala Ile Leu Glu Lys Ala Leu Lys Asp Leu Gln Asn
225                 230                 235                 240
Gly Lys

<210>123
<211>201
<212>PRT
<213>Chlamydia trachomatis
<400>123
Thr Leu Phe Phe Leu Val Ser Asp Met Ala Asp Leu Ser Ala Gln Asp
  1               5                  10                  15
Lys Leu Lys Gln Ile Cys Asp Ala Leu Arg Glu Glu Thr Leu Lys Pro
             20                  25                  30
Ala Glu Glu Glu Ala Gly Ser Ile Val His Asn Ala Arg Glu Gln Ala
          35                  40                  45
Lys Arg Ile Val Glu Glu Ala Lys Glu Glu Ala Gln Arg Ile Ile Arg
      50                  55                  60
Ser Ala Glu Glu Thr Ala Asp Gln Thr Leu Lys Lys Gly Glu Ala Ala
 65                  70                  75                  80
Leu Val Gln Ala Gly Lys Arg Ser Leu Glu Asn Leu Lys Gln Ala Val
                 85                  90                  95
Glu Thr Lys Ile Phe Arg Glu Ser Leu Gly Glu Trp Leu Asp His Val
            100                 105                 110
Ala Thr Asp Pro Glu Val Ser Ala Lys Leu Val Gln Ala Leu Val Gln
        115                 120                 125
Ala Val Asp Ala Gln Gly Ile Ser Gly Asn Leu Ser Ala Tyr Ile Gly
    130                 135                 140
Lys His Val Ser Ala Arg Ala Val Asn Glu Ala Leu Gly Lys Glu Ile
145                 150                 155                 160
Thr Ser Lys Leu Lys Glu Lys Gly Val Ser Val Gly Lys Phe Ser Gly
                165                 170                 175
Gly Ala Gln Leu Lys Val Glu Glu Arg Asn Trp Val Leu Asp Met Ser
            180                 185                 190
Ser Glu Val Leu Leu Asp Phe Ile Asp
        195                 200

<210>124
<211>216
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<212>PRT
<213>Chlamydia trachomatis
<400>124
Glu Arg Val Met Asn Gln Tyr Tyr Phe Leu Ser Ser Phe Leu Ser Pro
1 5 10 15
Gln Gln Pro Glu Ser Ser Pro Leu Tyr Ser Phe Gln Glu Ile Asn Asp
20 25 30
Leu Leu Ala Leu Asn Phe Thr Asp Lys Asp Trp Arg Ser Tyr Val Ile
35 40 45
Leu Arg Arg Phe Phe Asp Leu Glu Asn Phe Ala Phe Phe Trp Ala Gly
50 55 60
Lys Ser Ile Pro Phe Ser Phe Gly Thr Val Thr Asn Ser Asn Val Glu
65 70 75 80
Ser Leu Leu Arg Leu Gln Met Trp Ser Asp Glu Trp Glu Phe Glu Asp
85 90 95
Phe Phe Lys Asp Phe Leu Leu Arg Tyr Lys Thr Pro Arg Glu Arg Leu
100 105 110
Thr His Phe Ser Glu Leu Val Arg Asp Phe Leu Asp His Tyr Gln Asp
115 120 125
Tyr Pro Ser Glu Phe Leu Arg Thr Tyr Phe Arg Phe Lys Gln Asp Leu
130 135 140
Arg Ile Ile Leu Ala Gly Phe Arg Ala Arg Val Met Gln Lys Asp Val
145 150 155 160
Ser Phe Val Leu Arg Asp Glu Asp Ser Ser Asn Pro Ile Val Leu His
165 170 175
Val Leu Met Gln Lys Asp Ser Pro Asn Tyr Glu Leu Pro Asp Glu Phe
180 185 190
Phe Glu Leu Arg Asp Val Leu Gly Arg Leu Arg Ala Ser Ser Thr His
195 200 205
Val Glu Ser Asp Ser Leu Phe Leu
210 215
<210>125
<211>597
<212>PRT
<213>Chlamydia trachomatis
<400>125
Asp Gly Glu Arg Asn Gln Met Val Ala Thr Ser Lys Gln Thr Thr Gln
1 5 10 15
Gly Tyr Val Val Glu Ala Tyr Gly Asn Leu Leu Arg Val His Val Asp
20 25 30
Gly His Val Arg Gln Gly Glu Val Ala Tyr Val Ser Val Asp Asn Thr
35 40 45
Trp Leu Lys Ala Glu Ile Ile Glu Val Val Gly Met Lys Leu Arg Phe
50 55 60
Gln Val Phe Glu Glu Thr Gln Gly Ile Ser Arg Gly Ala Leu Val Thr
65 70 75 80
Phe Ser Gly His Leu Leu Glu Ala Glu Leu Gly Pro Gly Leu Leu Gln
85 90 95
Gly Ile Phe Asp Gly Leu Gln Asn Arg Leu Glu Ile Leu Ala Asp Thr
100 105 110
Ser Leu Phe Leu Arg Arg Gly Glu Tyr Val Asn Ala Ile Cys Arg Glu
115 120 125
Thr Val Trp Ala Tyr Thr Gln Lys Ala Ser Val Gly Ser Val Leu Ser
130 135 140
Arg Gly Asp Val Leu Gly Thr Val Lys Glu Gly Arg Phe Asp His Lys
145 150 155 160
Ile Met Val Pro Phe Ser Cys Phe Glu Glu Val Thr Ile Thr Trp Val
165 170 175
Ile Ser Ser Gly Asn Tyr Thr Val Asp Thr Val Val Ala Lys Gly Arg
180 185 190
Thr Ser Thr Gly Glu Glu Leu Glu Phe Thr Met Val Gln Lys Trp Pro

09/30/2003 14:10:00 - 14:10:00

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        195                 200                 205
Ile Lys Gln Ala Phe Leu Glu Gly Glu Lys Val Pro Ser His Glu Ile
    210                 215                 220
Met Asp Val Gly Leu Arg Val Leu Asp Thr Gln Ile Pro Val Leu Lys
225                 230                 235                 240
Gly Gly Thr Phe Cys Thr Pro Gly Pro Phe Gly Ala Gly Lys Thr Val
                245                 250                 255
Leu Gln His His Leu Ser Lys Tyr Ala Ala Val Asp Ile Val Val Leu
            260                 265                 270
Cys Ala Cys Gly Glu Arg Ala Gly Glu Val Val Glu Ile Leu Gln Glu
        275                 280                 285
Phe Pro His Leu Lys Asp Pro His Thr Gly Gln Ser Leu Met His Arg
    290                 295                 300
Thr Cys Ile Ile Cys Asn Thr Ser Ser Met Pro Val Ala Ala Arg Glu
305                 310                 315                 320
Ser Ser Ile Tyr Leu Gly Ile Thr Ile Ala Glu Tyr Tyr Arg Gln Met
                325                 330                 335
Gly Leu His Ile Leu Leu Leu Ala Asp Ser Thr Ser Arg Trp Ala Gln
            340                 345                 350
Ala Leu Arg Glu Ile Ser Gly Arg Leu Glu Glu Ile Pro Gly Glu Glu
        355                 360                 365
Ala Phe Pro Ala Tyr Leu Ala Ser Arg Ile Ala Ala Phe Tyr Glu Arg
    370                 375                 380
Gly Gly Ala Val Lys Met Lys Asp Gly Ser Glu Gly Ser Leu Thr Ile
385                 390                 395                 400
Cys Gly Ala Val Ser Pro Ala Gly Gly Asn Phe Glu Glu Pro Val Thr
                405                 410                 415
Gln Ala Thr Leu Ser Val Val Gly Ala Phe Cys Gly Leu Ser Lys Ala
            420                 425                 430
Arg Ala Asp Ala Arg Arg Tyr Pro Ser Ile Asp Pro Met Ile Ser Trp
        435                 440                 445
Ser Lys Tyr Leu Asp Ser Val Ala Glu Ile Leu Glu Lys Lys Val Pro
    450                 455                 460
Gly Trp Gly Glu Ser Val Lys Gln Ala Ser Arg Phe Leu Glu Glu Gly
465                 470                 475                 480
Ala Glu Ile Gly Lys Arg Ile Glu Val Val Gly Glu Glu Gly Ile Ser
                485                 490                 495
Met Glu Asp Met Glu Ile Phe Leu Lys Ser Glu Leu Tyr Asp Phe Cys
            500                 505                 510
Tyr Leu Gln Gln Asn Ala Phe Asp Ala Glu Asp Cys Tyr Cys Pro Phe
        515                 520                 525
Asp Arg Gln Ile Glu Leu Phe Ser Leu Met Asn His Ile Phe Asn Ser
    530                 535                 540
Arg Phe Cys Phe Asp Cys Pro Asp Asn Ala Arg Ser Phe Phe Leu Glu
545                 550                 555                 560
Leu Gln Ser Lys Ile Lys Thr Leu Asn Gly Gln Lys Phe Leu Ser Glu
                565                 570                 575
Glu Tyr Gln Lys Gly Leu Glu Val Ile Tyr Lys Leu Leu Glu Ser Lys
            580                 585                 590
Met Val Gln Thr Ala
        595
<210>126
<211>438
<212>PRT
<213>Chlamydia trachomatis
<400>126
Met Gln Thr Ile Tyr Thr Lys Ile Thr Asp Ile Lys Gly Asn Leu Ile
  1               5                  10                  15
Thr Val Glu Ala Glu Gly Ala Ser Leu Gly Glu Leu Val Gln Ile Glu
            20                  25                  30
Arg Ala Asp Gly Arg Ser Ser Tyr Ala Ser Val Leu Arg Phe Asp Ala
```

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          35                  40                  45
Arg Lys Val Thr Leu Gln Val Phe Gly Gly Thr Ser Gly Leu Ser Thr
      50                  55                  60
Gly Asp Lys Val Ile Phe Leu Gly Arg Pro Met Glu Val Ile Tyr Gly
 65                  70                  75                  80
Asp Ser Leu Leu Gly Arg Arg Phe Asn Gly Thr Gly Lys Pro Ile Asp
                 85                  90                  95
His Glu Asp Glu Cys Phe Gly Glu Pro Ile Pro Ile Thr Thr Pro Ser
            100                 105                 110
Phe Asn Pro Val Cys Arg Ile Val Pro Arg Glu Met Val Arg Thr Asn
        115                 120                 125
Ile Pro Met Ile Asp Met Phe Asn Cys Leu Val Lys Ser Gln Lys Ile
    130                 135                 140
Pro Ile Phe Ser Ser Ser Gly Glu Asn His Asn Ala Leu Leu Met Arg
145                 150                 155                 160
Ile Ala Ala Gln Thr Asp Ala Asp Ile Val Ile Ile Gly Gly Met Gly
                165                 170                 175
Leu Thr Phe Val Asp Tyr Asn Phe Phe Val Glu Glu Ser Gln Arg Leu
            180                 185                 190
Gly Phe Ala Asp Lys Cys Val Lys Phe Ile His Lys Ala Val Asp Ala
        195                 200                 205
Pro Val Glu Cys Val Leu Ile Pro Asp Met Ala Leu Ala Cys Ala Glu
    210                 215                 220
Arg Phe Ala Leu Glu Gln Gln Lys Asn Val Leu Val Leu Leu Thr Asp
225                 230                 235                 240
Met Thr Ala Phe Ala Asp Ala Leu Lys Glu Ile Ala Ile Thr Met Asp
                245                 250                 255
Gln Ile Pro Ala Asn Arg Gly Tyr Pro Gly Ser Leu Tyr Ser Asp Leu
            260                 265                 270
Ala Val Arg Tyr Glu Lys Ala Val Asp Ile Ala Gln Gly Gly Ser Ile
        275                 280                 285
Thr Leu Ile Ser Val Thr Thr Met Pro Gly Asp Asp Ile Thr His Pro
    290                 295                 300
Val Pro Asp Asn Thr Gly Phe Ile Thr Glu Gly Gln Phe Tyr Leu Lys
305                 310                 315                 320
Asp Asn Arg Ile Asp Pro Phe Gly Ser Leu Ser Arg Leu Lys Gln Leu
                325                 330                 335
Val Ile Gly Lys Lys Thr Arg Glu Asp His Gly Asp Leu Ala Asn Ala
            340                 345                 350
Leu Ile Arg Leu Tyr Ala Asp Ser Arg Lys Ser Ala Glu Arg Met Ser
        355                 360                 365
Met Gly Phe Lys Leu Ser Asn Trp Asp Lys Lys Leu Leu Ala Phe Ser
    370                 375                 380
Glu Leu Phe Glu Ala Arg Leu Met Ser Leu Glu Val Asn Ile Pro Leu
385                 390                 395                 400
Glu Glu Ala Leu Asp Ile Gly Trp Lys Ile Leu Ser Gln Ser Phe His
                405                 410                 415
Ser Glu Glu Val Gly Ile Lys Glu Gln Leu Ile Gln Lys Tyr Trp Pro
            420                 425                 430
Lys Ala Cys Leu His Lys
        435
<210>127
<211>204
<212>PRT
<213>Chlamydia trachomatis
<400>127
Ser Met Ser Ser Gln Ile Lys Leu Thr Lys Asn Ser Tyr Arg Ala Glu
  1               5                  10                  15
Lys Gln Lys Leu Asn Met Leu Gly Met Tyr Leu Pro Thr Leu Lys Leu
            20                  25                  30
Lys Lys Ala Leu Leu Gln Ala Glu Val Gln Ser Ala Ile Arg Leu Ala
```

```
         35                  40                  45
Ala Glu Ser Thr Ala Thr Asn Glu Gln Ala Arg Asp Arg Met Tyr Ala
     50                  55                  60
Phe Ala Glu Leu Phe Ser Ile Pro Leu Tyr Thr Asp Ala Val Glu Gln
 65                  70                  75                  80
Cys Phe Ser Val Asp Ile Leu Glu Lys Asp Val Glu Asn Ile Ala Gly
                 85                  90                  95
Val Glu Val Pro Leu Leu Lys Arg Val Val Leu Thr Ser Pro Glu Tyr
            100                 105                 110
Ser Leu Leu Asp Thr Pro Ile Trp Leu Asp Ser Leu Leu Ala Ser Val
        115                 120                 125
Lys Glu Tyr Val Val Ser Lys Ile Tyr Ala Glu Asn Ala Gln Glu Arg
    130                 135                 140
Leu Leu Leu Leu Glu Glu Glu Leu Arg Arg Val Ser Ile Arg Val Asn
145                 150                 155                 160
Leu Phe Glu Lys Lys Leu Ile Pro Thr Thr Ser Gln Thr Leu Lys Lys
                165                 170                 175
Ile Ala Ile Phe Leu Ser Asp Arg Ser Ile Thr Asp Val Gly Gln Met
            180                 185                 190
Lys Met Ala Lys Lys Lys Ile Gln Gln His Lys Glu
        195                 200
<210>128
<211>441
<212>PRT
<213>Chlamydia trachomatis
<400>128
Ser Thr Lys Ser Gly Tyr Leu Val Thr Glu Gln Leu Leu Gln Glu Ile
  1                 5                  10                  15
Phe Asp Leu Asn Gln Glu Ile Thr Thr Leu Thr Glu Ser Leu Lys Ala
             20                  25                  30
Leu Gly Lys Xaa Ile Val Arg Val Lys Pro Leu Gly Asp Phe Ser Ser
         35                  40                  45
Glu Glu Ile Arg Glu Leu Thr Leu Lys Thr Gly Leu Ala Val Arg Phe
     50                  55                  60
Phe Tyr Lys Arg His Ile Glu Gly Ala Pro Leu Glu Val Glu Glu Glu
 65                  70                  75                  80
Asn Val Phe Tyr Leu Ala Thr Ala Tyr Asn Tyr Asp Tyr Tyr Ala Val
                 85                  90                  95
Ile Gly Ile Val Ser Leu Ser Lys Asp Ile Phe Thr Glu Ile Glu Ala
            100                 105                 110
Pro Arg Ser Val Asn Glu Leu Arg Glu Glu Ala Gly His Leu Gln Ala
        115                 120                 125
Leu Leu Arg Lys Lys Lys Ala Arg Val Cys Glu Leu Tyr Ala Tyr Arg
    130                 135                 140
Glu Asp Leu Leu Glu Ala Leu Cys Glu Gln Cys Asn Glu Gln Ser Leu
145                 150                 155                 160
Gln His Ala Glu Ala Ser Ala Glu Asp Leu Phe Asp Asp Lys Val Phe
                165                 170                 175
Ser Ala Leu Gly Trp Val Ile Val Asp Arg Leu Asp Glu Val Lys Lys
            180                 185                 190
Leu Cys Asp Ser Leu Gly Ile Tyr Leu Glu Arg Val Gln Pro Asp Pro
        195                 200                 205
Asp Glu Val Ile Pro Thr Tyr Leu Glu Asn His Gly Leu Gly Ala Leu
    210                 215                 220
Gly Glu Ser Leu Val Asn Ile Tyr Asp Thr Pro Ala Ser Thr Asp Lys
225                 230                 235                 240
Asp Pro Ser Leu Trp Val Phe Phe Ser Phe Phe Val Phe Phe Ser Met
                245                 250                 255
Ile Ile Asn Asp Ala Gly Tyr Gly Leu Val Phe Leu Ala Thr Ser Leu
            260                 265                 270
Phe Leu Ser Phe Lys Ala Arg Lys Gln Ile Lys Arg Ser Ile Ala Leu
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        275                 280                 285
Lys Arg Phe Leu Gln Met Phe Met Ile Leu Gly Leu Gly Cys Val Cys
    290                 295                 300
Trp Gly Gly Ala Thr Thr Ser Phe Phe Gly Val Ser Val Ser Tyr Thr
305                 310                 315                 320
Ser Pro Phe Arg Glu Tyr Ser Leu Thr His Phe Leu Ala Leu Lys Lys
                325                 330                 335
Ala Glu Tyr Tyr Leu Lys Glu Arg Pro Lys Gly Tyr Lys Glu Leu Val
            340                 345                 350
His Asp Tyr Pro Ile Leu Lys Glu Lys Lys Thr Pro Lys Glu Phe Leu
        355                 360                 365
Leu Ala Gln Ser Thr Ser Ser Gly Asp Ser Val Tyr Lys Ala Val Val
    370                 375                 380
Tyr Asp Lys Phe Ile Asp Asn Ile Leu Met Glu Ile Ala Leu Leu Val
385                 390                 395                 400
Gly Val Val His Leu Ser Leu Gly Met Leu Arg Tyr Cys Arg Gln Arg
                405                 410                 415
Tyr Ser Ser Ile Gly Trp Val Ile Phe Met Cys Gly Asp Ile Cys Ile
            420                 425                 430
Cys Leu Ser Ile Cys Lys Pro Tyr Leu
        435                 440
```

<210>129
<211>170
<212>PRT
<213>Chlamydia trachomatis

<400>129

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Thr Ala Val Phe Phe Tyr Arg Met Gly Asn Leu Tyr Val Arg Arg Tyr
  1               5                  10                  15
Met Tyr Leu Pro Ile Tyr Leu Gln Ala Val Ser Leu Ile His Tyr Ala
            20                  25                  30
Leu His Ile Pro Tyr Glu Leu Gly Gly Leu Val Gly Tyr Tyr Val Thr
        35                  40                  45
Phe Ile Gly Leu Gly Val Ala Ile Leu Gly Gly Val Ile Gln Arg Gly
    50                  55                  60
Leu Arg Gly Leu Asp Glu Ile Thr Ala Val Ile Gln Val Phe Ser Asp
65                  70                  75                  80
Val Leu Ser Tyr Leu Arg Leu Tyr Ala Leu Ser Leu Ala Gly Glu Met
                85                  90                  95
Val Gly Asn Thr Val Met Val Met Ser Glu Arg Phe Ser Pro Ala Val
            100                 105                 110
Gly Ile Leu Ile Ile Ile Phe Gly His Thr Val Asn Ile Ala Leu Ser
        115                 120                 125
Ile Met Gly Gly Val Ile His Gly Leu Arg Leu Asn Phe Ile Glu Trp
    130                 135                 140
Tyr His Tyr Ser Phe Asp Gly Gly Gly Lys Phe Leu His Pro Leu Lys
145                 150                 155                 160
Lys Val Ile Tyr Gln Lys Ser Gln Asn Leu
                165                 170
```

<210>130
<211>125
<212>PRT
<213>Chlamydia trachomatis

<400>130

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Glu Met Ser Ser Glu Arg Lys Tyr Met Ile Asp Val Ser Val Val Gly
  1               5                  10                  15
Pro Val Leu Ala Met Ala Leu Ala Met Ile Gly Ser Ala Val Gly Cys
            20                  25                  30
Gly Met Ala Gly Val Ala Ser His Ala Val Met Ser Arg Ile Asp Glu
        35                  40                  45
Gly His Gly Lys Ile Ile Gly Leu Ser Ala Met Pro Ser Ser Gln Ser
    50                  55                  60
```

```
Ile Tyr Gly Leu Ile Phe Met Leu Leu Leu Asn Asp Ala Ile Lys Asp
 65                  70                  75                  80
Gly Lys Val Ser Ala Val Ser Gly Ile Val Met Gly Ile Ala Val Gly
                85                  90                  95
Ser Ala Leu Leu Leu Ser Ala Phe Met Gln Gly Lys Cys Cys Val Ser
            100                 105                 110
Ala Ile Gln Ala Tyr Ala Arg Ser Ser Ala Asn Ile Trp
        115                 120                 125
<210>131
<211>216
<212>PRT
<213>Chlamydia trachomatis
<400>131
Gly Trp Lys Ser Leu Cys Ser Gln Trp Tyr Arg Asn Gly Tyr Ser Cys
  1               5                  10                  15
Arg Ile Cys Val Ile Ala Phe Cys Phe Tyr Ala Arg Glu Val Leu Cys
            20                  25                  30
Glu Cys Tyr Ser Ser Leu Cys Ala Phe Leu Cys Lys Tyr Met Val Asn
        35                  40                  45
His Leu Leu Arg Leu Gly Leu Leu Ser Leu Leu Arg Tyr Leu Leu Ser
    50                  55                  60
Phe Leu Arg Tyr Cys Tyr Ser Lys Trp Xaa Ala Ala Ala Phe Ser Ala
 65                  70                  75                  80
Leu Cys Leu Gly Gly Cys Ser Gln Pro Ala Leu Ser Ser Phe Leu Glu
                85                  90                  95
Phe Ile Asp Asn Asp Tyr Thr Ala Ala Ala His Leu Gly Ile Asp Arg
            100                 105                 110
Gly Cys Val Thr Glu Ser Val Gly Gln Gln Leu Val Val Thr Trp Gly
        115                 120                 125
Leu Pro Ser Arg Phe Arg Asp Ser Leu Pro Met Val Leu His Val Trp
    130                 135                 140
Val Tyr Tyr Gly Asn Gly Glu Ala Ala Lys Phe Ser Tyr Asp Val Gln
145                 150                 155                 160
His Leu Ser Gly Tyr Gln Val Tyr Thr Leu Lys Glu Asn Asp Tyr Gln
                165                 170                 175
Asp Arg Gln Gly Ile Xaa Ser Tyr Lys Val Ser Leu Thr Lys Asp Gly
            180                 185                 190
Lys Glu Ile Leu Ser Arg Ser His His Leu Trp Met Glu Val Ile Ser
        195                 200                 205
Leu Lys Ala Phe Ser Gln Leu Ser
    210                 215
<210>132
<211>939
<212>PRT
<213>Chlamydia trachomatis
<400>132
Met Asn Glu Asp Gln Phe Pro Lys Ala Tyr Asp Pro Lys Ser Ser Glu
  1               5                  10                  15
Thr Gly Val Tyr Ser Phe Trp Glu Arg Ser Gly Met Phe Val Ala Asn
            20                  25                  30
Ala Ser Ser Glu Lys Pro Ala Tyr Ser Ile Val Met Pro Pro Pro Asn
        35                  40                  45
Val Thr Gly Ile Leu His Met Gly His Ala Leu Val Asn Thr Leu Gln
    50                  55                  60
Asp Thr Leu Ile Arg Tyr Lys Arg Met Gln Gly Phe Glu Val Cys Trp
 65                  70                  75                  80
Val Pro Gly Thr Asp His Ala Gly Ile Ala Thr Gln Thr Val Val Glu
                85                  90                  95
Arg His Leu Lys Ala Ser Leu Gly Lys Arg Arg Thr Asp Phe Ser Arg
            100                 105                 110
Glu Glu Phe Leu Lys His Val Trp Asp Trp Lys Glu Lys Ser Gln Asn
```

```
        115                 120                 125
Val Ile Leu Ser Gln Leu Arg Gln Leu Gly Cys Ser Cys Asp Trp Ser
    130                 135                 140
Arg Gln Arg Phe Thr Met Asp Pro Gly Ala Asn Arg Ala Val Lys Lys
145                 150                 155                 160
Ala Phe Lys Ile Leu Phe Asp Lys Gly Val Ile Tyr Arg Gly Tyr Tyr
                165                 170                 175
Leu Val Asn Trp Asp Pro Ile Leu Gln Thr Ala Leu Ala Asp Asp Glu
            180                 185                 190
Val Glu Tyr Glu Glu Arg Asp Gly Trp Leu Tyr Tyr Ile Arg Tyr Gln
        195                 200                 205
Val Val Asn Ser Glu Glu Phe Ile Thr Val Ala Thr Thr Arg Pro Glu
    210                 215                 220
Thr Leu Leu Gly Asp Thr Ala Ile Ala Val Ser Pro Glu Asp Gln Arg
225                 230                 235                 240
Tyr Ser His Leu Ile Gly Ala Lys Val Val Val Pro Phe Val Asn Arg
                245                 250                 255
Glu Ile Pro Ile Ile Gly Asp Phe Ser Val Asp Ala Ser Phe Gly Thr
            260                 265                 270
Gly Ala Val Lys Ile Thr Pro Ala His Asp Lys Asp Asp Tyr Lys Thr
        275                 280                 285
Gly Met Asn His Gln Leu Pro Met Ile Asn Ile Leu Thr Ser Thr Gly
    290                 295                 300
Glu Ile Asn Glu Asn Gly Gly Ile Phe Thr Gly Leu Ser Arg Glu Val
305                 310                 315                 320
Ala Arg Glu Asn Ile Ile Thr Ser Leu Glu Ala Leu Gly Leu Phe Val
                325                 330                 335
Lys Lys Glu Ala Tyr Ser Ser Arg Val Gly Val Ser Tyr Arg Ser Gly
            340                 345                 350
Ala Ile Ile Glu Pro Tyr Leu Ser Lys Gln Trp Phe Val Ser Val Asp
        355                 360                 365
Ser Phe Arg Asp Ser Leu Arg Glu Phe Val Asn Ser Glu Glu Ile Arg
    370                 375                 380
Ile Phe Pro Pro Glu Phe Val Arg Asn Tyr Leu Thr Trp Val Asn Asn
385                 390                 395                 400
Leu Lys Asp Trp Cys Ile Ser Arg Gln Leu Trp Trp Gly His Arg Ile
                405                 410                 415
Pro Val Trp His Asn Lys His Asp Glu Asn Val Ile Cys Phe Asp Gly
            420                 425                 430
Glu Gly Gly Pro Glu Glu Val Met Arg Asp Pro Glu Ser Trp Tyr Gln
        435                 440                 445
Asp Pro Asp Val Leu Asp Thr Trp Phe Ser Ser Gly Leu Trp Pro Leu
    450                 455                 460
Thr Cys Phe Gly Trp Pro Asp Glu Asp Ser Leu Asp Leu Lys Lys Phe
465                 470                 475                 480
Tyr Pro Thr Ala Val Leu Val Thr Gly His Asp Ile Leu Phe Phe Trp
                485                 490                 495
Val Thr Arg Met Val Leu Met Cys Ser Ala Met Val Asp Thr Glu Pro
            500                 505                 510
Phe Ser Asp Val Phe Leu His Gly Leu Ile Phe Gly Lys Ser Tyr Arg
        515                 520                 525
Glu Tyr Asp Glu Lys Gly Glu Trp Phe Tyr Val Ser Gly Glu Arg Lys
    530                 535                 540
Arg Asp Tyr Asp Lys Gly Lys Ala Leu Pro Lys Asn Val Val Ala Lys
545                 550                 555                 560
Trp Glu Lys Leu Ser Lys Ser Lys Gly Asn Val Ile Asp Pro Ile Glu
                565                 570                 575
Met Ile Glu Ala Tyr Gly Ala Asp Ala Val Arg Leu Thr Leu Cys Ser
            580                 585                 590
Cys Ala Asn Arg Gly Glu Gln Ile Asp Leu Asp Tyr Arg Leu Phe Glu
        595                 600                 605
```

Glu Tyr Lys Asn Phe Ile Asn Lys Leu Trp Asn Gly Ala Arg Phe Ile
610 615 620
Phe Gly His Ile Ser Glu Leu Thr Ser Arg Asp Leu Glu Glu Gly Val
625 630 635 640
Asn Gln Asp Leu Leu Gly Leu Glu Asp Phe Tyr Ile Leu Asp Arg Phe
645 650 655
Asn Glu Leu Leu Asp Leu Ile Asp Gly His Tyr Asn Cys Tyr Ser Phe
660 665 670
Asp Lys Ile Ala Ser Leu Ala Tyr Asp Phe Phe Lys Asn Asp Leu Cys
675 680 685
Ser Thr Tyr Leu Glu Ile Ile Lys Pro Thr Leu Phe Gly Lys Gln Gly
690 695 700
Ser Asp Gln Gln Arg Ala Thr Lys Arg Lys Leu Leu Ala Thr Leu Leu
705 710 715 720
Ile Asn Ile Leu Gly Val Leu His Pro Ile Val Pro Tyr Ile Thr Glu
725 730 735
Thr Leu Phe Gln Lys Leu Lys Ala Thr Leu Gly Thr Val Glu Asn Gly
740 745 750
Lys Gly Asp Ser Val Thr Gly His Ala Val Ser Met Leu Arg Ser Glu
755 760 765
Ala Cys Met Val Ala Glu Tyr Pro Lys Pro Ile His Val Ala Phe Pro
770 775 780
Gln Gly Leu Arg Glu Ser Phe Gly Ile Ala Glu Arg Leu Val Tyr Thr
785 790 795 800
Ile Arg Asn Ile Arg Gly Glu Met Gln Leu Asp Pro Arg Glu Pro Leu
805 810 815
Gln Ala Phe Val Ile Ser Ser Glu Lys Lys Glu Leu Val Asp Val Cys
820 825 830
Ile Pro Ile Met Cys Ala Leu Gly Gly Val Lys Thr Val Glu Gln Leu
835 840 845
Ala Glu Ala Pro Lys Asp Ser Ile Phe Ser Leu Gly Val Val Glu Gly
850 855 860
Ile Gln Val Gly Val Ile Leu Pro Pro Glu His Leu Ala Lys Glu Arg
865 870 875 880
Val Arg Leu Glu Lys Glu Lys Thr Arg Leu Glu Lys Ser Ile Asp Ser
885 890 895
Val Ser Lys Leu Leu Ala Ser Glu Asp Phe Arg Thr Arg Ala Asn Pro
900 905 910
Ser Leu Val Gln Ala Lys Lys Asp Ser Leu Arg Asn Ser Gln Arg Glu
915 920 925
Leu Gln Ser Ile Leu Asp Lys Leu Ala Ser Leu
930 935

<210>133
<211>945
<212>PRT
<213>Chlamydia trachomatis
<400>133
Thr Arg Ile Ala Leu Lys Glu Ala Val Leu Leu Gln Arg Tyr Glu Leu
1 5 10 15
Ile Arg Leu Ile Gly Lys Gly Gly Met Gly Glu Val Tyr Leu Ala His
20 25 30
Asp Lys Ala Cys Ser Arg Arg Val Ala Leu Lys Arg Ile Arg Glu Asp
35 40 45
Leu Ser Gly Asn Ala Leu Leu Arg Lys Arg Phe Leu Arg Glu Ala Lys
50 55 60
Ile Ala Ala Asp Leu Ile His Pro Gly Ile Val Pro Val Tyr Ser Ile
65 70 75 80
Cys Ser Asp Gly Glu Ala Val Tyr Tyr Thr Met Pro Tyr Ile Glu Gly
85 90 95
Phe Ser Leu Lys Ser Leu Leu Lys Ser Val Trp Gln Lys Glu Val Leu
100 105 110

Ser Lys Glu Leu Glu Glu Lys Thr Ser Val Lys Ser Phe Leu Pro Ile
115 120 125
Phe Asp Lys Ile Cys Ala Thr Val Glu Tyr Ile His Ser Lys Gly Val
130 135 140
Leu His Arg Asp Leu Lys Pro Asp Asn Ile Leu Leu Gly Leu Phe Gly
145 150 155 160
Glu Val Val Ile Val Asp Trp Gly Ala Ala Ile Phe Lys His Ala Lys
165 170 175
Glu Leu Lys Leu Glu Gln Asp Asp Glu Ala Ala Val Ser Phe Asp Glu
180 185 190
Arg Asn Ile Cys Tyr Ser Ser Met Thr Ile Pro Gly Lys Ile Val Gly
195 200 205
Thr Pro Asp Tyr Met Ala Pro Glu Ser Leu Leu Gly Val Glu Ala Ser
210 215 220
Glu Lys Thr Asp Ile Tyr Ala Leu Gly Leu Ile Leu Tyr Gln Met Leu
225 230 235 240
Thr Leu Ala Phe Pro Tyr Arg Arg Lys Lys Gly Arg Lys Leu Ser Tyr
245 250 255
Arg Asp Val Val Leu Pro Pro Ile Glu Met Ser Pro Tyr Arg Glu Ile
260 265 270
Pro Pro Ser Leu Ser Gln Ile Ala Met Lys Ala Ile Ala Ile Asn Pro
275 280 285
Ala Asp Arg Phe Ser Ser Ile Gln Glu Leu Arg Gln Ala Leu Gln Pro
290 295 300
Tyr Leu Gln Gly Asp Pro Glu Trp Thr Val Lys Ala Thr Leu Met Ala
305 310 315 320
Lys Glu Lys Ser Cys Trp Lys Tyr Tyr Asp Pro Ile Leu Leu Ser Arg
325 330 335
Tyr Phe Pro Val Leu Ala Ser Ser Pro Ala Gln Trp Tyr Asn Phe Met
340 345 350
Leu Ser Glu Val Glu Ile Ser Ala Ser Thr Arg Val Glu Tyr Thr Val
355 360 365
Thr Lys Ser Ala Val His Glu Gly Met Gly Ile Leu Phe Leu Pro Ser
370 375 380
Lys Glu Ala Glu Arg Gly Glu Phe Tyr Cys Gly Tyr Gly Leu Trp Phe
385 390 395 400
Ser Val Gln Asn His Glu Leu Thr Val Ser Leu Ile Lys Asn Gly Ile
405 410 415
Glu Ile Gln Lys Lys Ser Gln Glu Met Ile Ser Gln Gln Tyr Arg Phe
420 425 430
Ala Ile Leu Ile Glu Lys Ser Asp Asn Arg Ile Ala Val Phe Val Glu
435 440 445
Gln Ala Leu Phe Ile Leu His Ile Asp Tyr Leu Pro Ser Leu Gly Asn
450 455 460
Arg Leu Gly Val Ile Ile Gln Asp Leu Gln Gly Met Ser Asn Ile Ala
465 470 475 480
Ile Ser Glu Ser Ile Gly Ala Leu Arg Val Ser Cys Leu Ala Val Pro
485 490 495
Asp Ala Phe Leu Ser Glu Lys Leu Tyr Asp Gln Ala Ala Ile Phe Tyr
500 505 510
Arg Lys Ile Arg Asp Ser Phe Pro Gly Arg Lys Glu Ser Tyr Glu Ala
515 520 525
Gln Phe Arg Leu Gly Val Thr Leu Leu Thr Gln Ile Glu Glu Gln Gly
530 535 540
Gly Asp Leu Thr Gln Ala Leu Ser Ser Phe Asp Tyr Leu His Gly Gly
545 550 555 560
Ala Gly Ala Pro Leu Glu Tyr Leu Gly Lys Ala Leu Val Tyr Gln Arg
565 570 575
Asn Gly Ser Phe Val Glu Glu Ile Arg Cys Leu Leu Phe Ala Leu Lys
580 585 590
Arg Tyr Ser Gln His Pro Glu Ile Pro Arg Leu Glu Asp His Leu Cys

595 600 605
Phe Arg Leu Tyr Asp Ser Leu His Lys His Arg Ser Glu Ala Leu Val
610 615 620
Phe Met Leu Leu Ile Leu Trp Ile Ala Pro Glu Lys Ile Ser Val Arg
625 630 635 640
Glu Glu Lys Arg Phe Leu Arg Ile Ile Tyr His Lys Gln Gln Ala Thr
645 650 655
Leu Phe Cys Gln Val Asp Lys Ala Pro Leu Gln Phe Arg Ser Ser Lys
660 665 670
Met Glu Leu Phe Leu Ser Phe Trp Thr Ala Phe Ser Leu Phe Leu Pro
675 680 685
Glu Leu Phe Arg Arg Ala Gly Glu Leu Arg Asp Tyr Gln Ala Leu Ala
690 695 700
Asp Ile Phe Tyr Val Ala Gly Val Ser Gly Asn Arg Glu Ala Phe Met
705 710 715 720
Gln Phe Ser Thr Ala Leu Ala Asn Val Ser Asp Glu Ile Thr Phe Pro
725 730 735
Glu Ser Leu His Asn Gln Lys Val Ala Glu Leu Met Phe Phe Val Lys
740 745 750
Gly Val Glu Ala Leu Arg Asn Lys Asp Tyr Gln Lys Ala Lys Lys Ala
755 760 765
Phe Met Gly Lys Thr Pro Phe Thr Leu Gln Leu Tyr Ala Leu Asp Ile
770 775 780
Phe His Ile Gln Ala Phe Leu Asp Glu Glu Ile Glu Ser Phe Ile Asp
785 790 795 800
Leu Leu Gln Ala Ile Tyr Asp Pro Ala Ser Glu Glu Glu Arg Asp His
805 810 815
Ile Leu Val Tyr Ile Ile Gln Thr His Leu Trp Asn Arg Asp Leu Glu
820 825 830
Arg Ala Tyr Lys Leu Leu Asn Asp Arg Phe Pro Leu Asp Glu Glu Leu
835 840 845
Ala Glu Tyr Ser Glu Ala Phe Ile Leu Trp Gly Cys Tyr Leu Ala Leu
850 855 860
Thr Gly Asp Arg Val Ala Val Lys Ala His Phe Ser Arg Cys Arg Tyr
865 870 875 880
Lys Tyr Gly Lys Ser Ala Leu Ile Gly Lys Cys Val Asp Gly Asp Ile
885 890 895
Phe Asp Tyr Leu Asp Asn Leu Val Trp Trp Glu Lys Lys Met Thr Leu
900 905 910
Phe Gln Ser Tyr Phe Leu Leu Arg Cys Leu Asn Glu Ser Pro Arg Arg
915 920 925
Tyr Glu Lys Tyr Arg Gln Ala Tyr Leu Ser Met Glu Asn Asn Phe Phe
930 935 940
Asp
945

<210>134
<211>133
<212>PRT
<213>Chlamydia trachomatis
<400>134
Pro Pro Leu Gly Asn Gln Ser Val Ile Cys Thr Gly Pro Ile Phe Leu
1 5 10 15
Glu Ile Cys Val Met Ser Ser Ile Ser Ser Pro Gly Asn Ile Gln His
20 25 30
Pro Leu Pro Thr Thr Ala Ala Pro Asn Pro Pro Gln Lys Thr Gly Gly
35 40 45
His Ser Asn Leu Leu Phe Val Leu Ala Leu Leu Pro Val Ile Gly Leu
50 55 60
Gly Val Ala Ile Tyr Leu Cys Ala Arg Arg Ala Asn Tyr Trp Lys Gly
65 70 75 80
Asn Ala Ala Ile Ala Thr Ala Gly Gly Leu Gly Leu Ile Thr Ile Ala

```
                85                  90                  95
Ala Ala Leu Met Val Val Ile Thr Pro Ile Ile Phe Cys Leu Arg Tyr
            100                 105                 110
Leu Tyr Gln Leu Leu Cys Gln Leu Pro Ala His Cys Cys Gly Ser Ser
        115                 120                 125
His Gln Ile Glu Ile
    130
<210>135
<211>241
<212>PRT
<213>Chlamydia trachomatis
<400>135
Met Leu Ser Ala Tyr Tyr Asn Asp Pro Phe Leu Ala Asp Phe Cys Leu
  1               5                  10                  15
Gly Asn Ile Pro Leu Arg Leu Ala Ser Arg Gln Ser Ser Leu Ala Val
            20                  25                  30
Leu Gln Ala His Glu Cys Leu Arg Lys Leu Gln Ile Phe Phe Pro Arg
        35                  40                  45
Leu Trp Gly Gln Ile Ile Thr Thr Thr Thr Gln Gly Asp Leu Asp Gln
    50                  55                  60
Glu Thr Pro Leu Cys Ala Val Glu Asn Thr Gly Phe Phe Thr Asp Asp
65                  70                  75                  80
Val Asp Phe Leu Val Gln Ser Gly Gln Cys Asp Leu Gly Ile His Ser
                85                  90                  95
Ala Lys Asp Leu Pro Glu Asn Pro Lys Ala Thr Val Val Ser Ile Thr
            100                 105                 110
Ala Ser Ile Asp Pro Arg Asp Ile Leu Val Phe His Glu Lys Tyr Leu
        115                 120                 125
Ser Ile Pro Leu Pro Arg Arg Leu Arg Ile Gly Ser Ser Ser Val Arg
    130                 135                 140
Arg Lys Glu Leu Leu Ser Leu Leu Tyr Pro Ser Ala Ile Ile Thr Asp
145                 150                 155                 160
Ile Arg Gly Thr Ile Gln Thr Arg Leu Lys Leu Leu Glu Glu Lys Asn
                165                 170                 175
Phe Asp Ala Ile Val Met Ala Asn Ala Ala Val Ser Arg Leu Gly Leu
            180                 185                 190
Arg Leu Pro Cys Thr Lys Ile Leu Pro Pro Pro Tyr His Pro Leu Gln
        195                 200                 205
Gly Arg Leu Ala Ile Thr Ala Ser Arg His Ile Arg Ser Trp Arg Gly
    210                 215                 220
Leu Phe Leu Thr Cys Gly Ile Thr Glu Asp Val Glu Ile Met Cys Phe
225                 230                 235                 240
Ser

<210>136
<211>487
<212>PRT
<213>Chlamydia trachomatis
<400>136
Met Tyr Lys Ser Leu Leu Met Gly Ile Phe Gly Glu Lys Ala Leu Gln
  1               5                  10                  15
Asp Gln Lys Lys Lys Gln Lys Asn Leu Leu Leu Asn Arg Arg Tyr Gln
            20                  25                  30
His Met Thr Thr Lys Ile Lys Thr Gln Trp Thr Cys Thr Glu Cys Gly
        35                  40                  45
Thr His Ser Pro Lys Trp Leu Gly Gln Cys Ser Gly Cys Leu Gln Trp
    50                  55                  60
Asn Thr Leu Val Glu Glu Arg Thr Ala Pro Lys Leu Asn Thr Ser Ser
65                  70                  75                  80
Tyr Ser Ser Ser Ser Ser Ile Pro Ile Pro Leu Asn Asn Val Glu Phe
                85                  90                  95
```

```
Gln Glu Glu Ile Arg Ile His Thr Gln Ala Gln Gly Trp Asn Arg Leu
            100                 105                 110
Leu Gly Gly Gly Thr Val Arg Gly Ser Leu Ala Leu Leu Gly Gly Glu
        115                 120                 125
Pro Gly Ile Gly Lys Ser Thr Leu Leu Leu Gln Ile Ser Ser Gln Phe
    130                 135                 140
Ala Ala Ala Gly His Lys Val Leu Tyr Val Cys Gly Glu Glu Ser Val
145                 150                 155                 160
Ser Gln Thr Ser Leu Arg Ala Gln Arg Leu Gln Ile Ser Ser Asn Asn
                165                 170                 175
Ile Phe Leu Phe Pro Glu Thr Asn Leu Glu Asp Ile Lys Gln Gln Ile
            180                 185                 190
Asp Asn Ile Ala Pro Asp Ile Leu Val Ile Asp Ser Ile Gln Ile Ile
        195                 200                 205
Phe Ser Pro Ser Leu Ser Ser Ala Pro Gly Ser Val Ala Gln Val Arg
    210                 215                 220
Glu Thr Thr Ala Glu Leu Met His Ile Ala Lys Gln Lys Gln Ile Thr
225                 230                 235                 240
Thr Phe Ile Ile Gly His Val Thr Lys Ser Gly Glu Ile Ala Gly Pro
                245                 250                 255
Arg Ile Leu Glu His Leu Val Asp Thr Val Leu Tyr Phe Glu Gly Asn
            260                 265                 270
Val His Ala Asn Tyr Arg Met Ile Arg Ser Val Lys Asn Arg Phe Gly
        275                 280                 285
Pro Thr Asn Glu Leu Leu Ile Leu Ser Met His Thr Asp Gly Leu Arg
    290                 295                 300
Glu Val Glu Asn Pro Ser Gly Leu Phe Leu Gln Glu Lys Ile Val Glu
305                 310                 315                 320
Thr Thr Gly Ser Thr Ile Ile Pro Ile Val Glu Gly Ser Glu Thr Leu
                325                 330                 335
Leu Val Glu Val Gln Ala Leu Val Ser Ser Ser Pro Phe Ser Asn Pro
            340                 345                 350
Val Arg Lys Thr Ser Gly Phe Asp Pro Asn Arg Phe Ser Leu Leu Leu
        355                 360                 365
Ala Val Leu Glu Lys Arg Ala Asn Ile Lys Leu Tyr Thr Ser Asp Val
    370                 375                 380
Phe Leu Ser Ile Ala Gly Gly Leu Lys Ile Thr Gln Pro Ser Ala Asp
385                 390                 395                 400
Leu Gly Ala Val Leu Ser Val Val Ser Ser Leu Tyr Asn Arg Tyr Leu
                405                 410                 415
Pro Lys Asn Tyr Thr Tyr Thr Gly Glu Ile Gly Leu Gly Gly Glu Ile
            420                 425                 430
Arg His Val Ser His Met Glu His Arg Ile Lys Glu Ser Ile Ile Met
        435                 440                 445
Gly Phe Lys Gly Ile Val Met Pro Phe Gly Gln Ile Lys Gly Leu Pro
    450                 455                 460
Lys Glu Phe Leu Asp Gln Ile Asp Ile Ile Gly Val Lys Thr Ile Lys
465                 470                 475                 480
Asp Ala Val Arg Leu Leu Gln
                485
```

<210>137
<211>234
<212>PRT
<213>Chlamydia trachomatis
<400>137

```
Lys Ile Val Met Gln His Thr Val Asp Ile Gln Ala Ile Glu Ser Lys
  1               5                  10                  15
Leu Asn Phe Thr Phe Ser His Pro Arg Leu Leu Ile Thr Ala Leu Thr
            20                  25                  30
His Pro Ser Tyr Arg Asn Glu Phe Pro Ser Ala Glu Glu Asp Ser Glu
        35                  40                  45
```

Arg Leu Glu Phe Leu Gly Asp Ala Val Leu Gly Leu Val Val Thr Glu
50 55 60
His Leu Phe Leu Leu Phe Pro Ala Leu Asn Glu Gly Leu Leu Ser Thr
65 70 75 80
Thr Arg Ala Ala Leu Val Asn Ala Glu Ala Cys Phe Glu Tyr Thr Gln
85 90 95
Lys Leu Ser Leu Gly Glu His Leu Leu Ile Gly Arg Gly Glu Lys Met
100 105 110
Gln Ser His Arg Gly Lys Ile Ser Ala Tyr Ala Asn Leu Phe Glu Ala
115 120 125
Ile Leu Gly Ala Val Tyr Leu Asp Gly Gly Leu Ser Pro Ala Arg Gln
130 135 140
Ile Ile Val Pro Leu Leu Pro Asp Lys Glu Ser Ile Leu Pro Leu Met
145 150 155 160
Leu Val Asn Pro Lys Asn Arg Leu Gln Gln Phe Thr Gln Gln Thr Leu
165 170 175
Lys Val Leu Pro Ser Tyr Lys Ala Leu Pro Trp Lys Ser Glu Asp Gly
180 185 190
Ser Pro Gly Tyr His Val Gln Val Phe Val Asn Gly Asp Leu Trp Gly
195 200 205
Glu Gly Phe Ala Gly Ser Lys Lys Glu Ala Glu Lys Leu Ala Ala Lys
210 215 220
Gln Ala Leu Ser Thr His Asp Asn Lys Asn
225 230
<210>138
<211>157
<212>PRT
<213>Chlamydia trachomatis
<400>138
Val Ser Met Arg Ala Val Leu His Leu Glu His Lys Arg Tyr Phe Gln
1 5 10 15
Asn His Gly His Ile Leu Phe Glu Gly Leu Ala Pro Val Ser Asp Cys
20 25 30
Lys Gln Leu Glu Ala Glu Leu Lys Leu Phe Leu Lys Glu Val Ala Val
35 40 45
Val Lys Asp Arg His Leu Gln Arg Trp Arg Glu Asn Val His Arg Thr
50 55 60
Leu Pro Gly Val Gln Met Ile Val Lys Arg Val Arg Leu Asp His Leu
65 70 75 80
Ala Ala Glu Leu Thr His Arg Ser Arg Val Ala Leu Val Arg Asp Leu
85 90 95
Trp Val Gln Lys Gln Glu Glu Ile Leu Phe Asp Asp Cys Asp Cys Ser
100 105 110
Val Leu Leu Cys Leu Ser Gly Glu Lys Ala Gly Trp Gly Leu Phe Phe
115 120 125
Ser Gly Glu Tyr Pro Gln Asp Val Phe Asp Trp Gly Ala Gly Asp Thr
130 135 140
Ala Ile Ile Leu Arg Phe Ser Ser Ala Gly Phe Pro Asn
145 150 155
<210>139
<211>593
<212>PRT
<213>Chlamydia trachomatis
<400>139
Met Glu Ile Pro Arg Arg Lys Ile Glu Gly Met Phe Asp Pro Gln Thr
1 5 10 15
Ala Lys Asn Ile Leu Ser Trp Leu Glu Asp Val Val Cys Asp His Thr
20 25 30
Ser Val Leu Thr Leu Leu Asp Asn Asp Pro Glu Arg Leu Arg Glu Leu
35 40 45
Phe Ser Glu Thr Leu Thr Phe Gly Thr Ala Gly Leu Arg Gly Leu Met

```
     50                  55                  60
Gly Ile Gly Thr Asn Arg Leu Asn Val Phe Thr Ile Arg Arg Ala Thr
 65                  70                  75                  80
Gln Gly Leu Ala Arg Val Leu Lys Arg Arg Tyr Pro Asp Glu Lys Ile
                 85                  90                  95
Ser Val Val Ile Gly Tyr Asp Thr Arg His Asp Ser Phe Glu Phe Gly
            100                 105                 110
Gln Glu Thr Ala Lys Val Leu Ala Gly Asn Gly Ile Leu Ala Tyr Leu
        115                 120                 125
Phe Gln Ile Pro Glu Pro Leu Ala Leu Val Ser Tyr Ser Val Arg Glu
    130                 135                 140
Leu Gln Ala Lys Ala Gly Val Met Ile Thr Ala Ser His Asn Pro Pro
145                 150                 155                 160
Ala Tyr Asn Gly Tyr Lys Val Tyr Met Ser Thr Gly Gly Gln Val Leu
                165                 170                 175
Pro Pro Met Asp Gln Glu Ile Met Glu Glu Phe Gln Lys Val Glu Met
            180                 185                 190
Val Ser Ala Val Glu Ser Leu Asp His Pro Tyr Ile Arg Met Ile Gln
        195                 200                 205
Glu Asp Met Glu Asn Tyr Tyr Glu Glu Thr Leu His Lys Leu Gln Leu
    210                 215                 220
Cys Glu Glu Asp Asn Arg Arg His Gly Ser Leu Leu Arg Ile Ser Tyr
225                 230                 235                 240
Ser Pro Leu His Gly Thr Gly Val Thr Met Ile Pro Arg Ile Leu Lys
                245                 250                 255
Asp Trp Gly Phe Ser Ser Val Ser Leu Val Glu Lys Gln Met Val Pro
            260                 265                 270
Asp Gly Asp Phe Pro Thr Val Val Leu Pro Asn Pro Glu Asp Pro Glu
        275                 280                 285
Ala Leu Val Leu Gly Ile Gln Gln Met Val Glu Gln Lys Asp Asp Leu
    290                 295                 300
Phe Ile Ala Thr Asp Pro Asp Ser Asp Arg Ile Gly Val Val Ser Leu
305                 310                 315                 320
Glu Lys Glu Gly Pro Tyr Arg Phe Asn Gly Asn Gln Ile Ala Cys Leu
                325                 330                 335
Leu Ala Ala His Ile Leu Ser Lys Glu Ser Gln Lys Ala Pro Leu Gly
            340                 345                 350
Ala Glu Asp Lys Val Val Lys Ser Leu Val Thr Thr Glu Leu Leu Thr
        355                 360                 365
Ala Ile Ser Glu Ser Tyr Gly Ala Asn Ile Val Asn Val Gly Ala Gly
    370                 375                 380
Phe Lys Tyr Ile Gly Glu Lys Ile Glu Leu Trp Arg Ser Gly Met Glu
385                 390                 395                 400
Arg Phe Ile Phe Gly Ala Glu Glu Ser Tyr Gly Tyr Leu Tyr Gly Ser
                405                 410                 415
Tyr Val Glu Asp Lys Asp Ala Met Ile Ala Ala Val Leu Ile Ser Glu
            420                 425                 430
Ala Ala Leu Gln Gln Lys Ile Arg Gly Cys Thr Leu Arg Asp Ala Leu
        435                 440                 445
Leu Glu Leu Tyr Glu Val Tyr Gly Tyr Tyr Ala Asn Arg Thr Glu Ser
    450                 455                 460
Ile Asp Leu Pro Ile Asp Gln Pro Gln Arg Lys Gln Glu Leu Leu Asp
465                 470                 475                 480
Arg Trp Glu Thr Gln Asp Pro Leu Arg Met Ser Leu Ser Ser Arg Lys
                485                 490                 495
Leu Ile Ala Phe Glu Asn Tyr Asn Thr Gly Glu Gly Arg Asp Leu Val
            500                 505                 510
Thr Asp Ile Thr Tyr Lys Leu Ser Leu Pro Lys Met Ser Met Leu Cys
        515                 520                 525
Phe Tyr Tyr Glu Gly Asp Cys Arg Val Ile Val Arg Pro Ser Gly Thr
    530                 535                 540
```

```
Glu Pro Lys Met Lys Leu Tyr Phe Glu Ile Lys Gln Ser Phe Ser Glu
545                 550                 555                 560
Phe Ser Lys Glu Arg Thr Val Arg Glu Ala Arg Glu Lys Glu Ser Phe
                565                 570                 575
Glu Ala Leu Gln Gln Phe Ile Lys Glu Thr Lys Ser His Leu Phe Tyr
            580                 585                 590
Ser
```

<210>140
<211>222
<212>PRT
<213>Chlamydia trachomatis
<400>140

```
Lys Ile Glu Lys Val Ala Arg Ile Val Thr Leu Phe Phe Arg Met Ala
  1               5                  10                  15
Met Val Phe Ser Ser Tyr Met Leu Pro Ala Leu Pro Tyr Asp Tyr Asp
            20                  25                  30
Ala Leu Glu Pro Val Ile Ser Ala Glu Ile Met Gln Leu His His Gln
        35                  40                  45
Lys His His Gln Gly Tyr Ile Asn Asn Leu Asn Glu Ala Leu Lys Ser
    50                  55                  60
Leu Asp Val Ala Asn Ala Thr Gln Asp Leu Thr Arg Leu Ile Ala Ile
65                  70                  75                  80
Asn Pro Ala Leu Arg Phe Asn Gly Gly Gly His Ile Asn His Ser Leu
                85                  90                  95
Phe Trp Glu Met Leu Ala Pro Gln Gly Lys Gly Gly Gly Val Pro Pro
            100                 105                 110
Arg His Glu Leu Leu Lys Leu Ile Glu Lys Phe Trp Gly Ser Phe Asp
        115                 120                 125
Ser Phe Leu Lys Asn Phe Ile Ala Ser Ser Ala Ala Val Gln Gly Ser
    130                 135                 140
Gly Trp Gly Trp Leu Ala Phe Cys Pro Lys Lys Gln Glu Phe Val Val
145                 150                 155                 160
Gln Thr Thr Ala Asn Gln Asp Pro Leu Glu Ala Thr Thr Gly Met Ile
                165                 170                 175
Pro Leu Pro Gly Val Asp Val Trp Glu His Ala Tyr Tyr Leu Gln Tyr
            180                 185                 190
Lys Asn Val Arg Ile Asp Tyr Leu Lys Ser Phe Pro Ser Ile Ile Asn
        195                 200                 205
Trp Asp Tyr Ile Glu Asn Arg Phe Val Glu Met Ser Lys Gln
    210                 215                 220
```

<210>141
<211>312
<212>PRT
<213>Chlamydia trachomatis
<400>141

```
Glu Asp Gly Phe Val Arg Leu Phe Ser Tyr Asp Lys Pro Lys Ile Lys
  1               5                  10                  15
Val Gln Lys Ile Lys Ala Asp Gly Phe Ser Gly Trp Leu Lys Cys Thr
            20                  25                  30
His Cys Ser Glu Met Ile His Ala Asn Glu Leu Gly Gln Asn Phe Asn
        35                  40                  45
Cys Cys Pro Lys Cys Ser Tyr His Tyr Arg Ile Ser Val Ser Glu Arg
    50                  55                  60
Ile Ala Leu Leu Ala Asp Lys Asp Ser Trp Asn Pro Leu Phe Ser Asp
65                  70                  75                  80
Leu Arg Ser Gln Asp Pro Leu Asn Phe Val Asp Thr Asp Thr Tyr Pro
                85                  90                  95
Asn Arg Leu Glu Lys Ala Arg Lys Asp Asn Pro Asp Ser Glu Gly Val
            100                 105                 110
Leu Val Gly Ala Cys Thr Ile Gly Ser Tyr Pro Val Ala Leu Ala Val
```

```
        115                 120                 125
Met Asp Phe Ser Phe Met Ala Gly Ser Met Gly Ala Val Val Gly Glu
    130                 135                 140
Lys Leu Thr Arg Leu Ile Glu Lys Ala Ile Asp Ser Arg Leu Pro Val
145                 150                 155                 160
Ile Ile Val Ser Ala Ser Gly Gly Ala Arg Met Gln Glu Ser Val Phe
                165                 170                 175
Ser Leu Met Gln Met Ala Lys Thr Ser Ala Ala Leu Ala Lys Leu His
            180                 185                 190
Glu Ala Lys Leu Pro Tyr Ile Ser Val Leu Thr Asn Pro Thr Ser Gly
        195                 200                 205
Gly Val Thr Ala Ser Phe Ala Ser Leu Gly Asp Val Ile Ile Ala Glu
    210                 215                 220
Pro Lys Ala Leu Ile Cys Phe Ala Gly Pro Arg Val Val Ser Gln Val
225                 230                 235                 240
Ile Gly Glu Asp Leu Pro Glu Gly Ala Gln Lys Ser Glu Phe Leu Leu
                245                 250                 255
Glu His Gly Met Ile Asp Lys Val Val Glu Arg Lys Gln Leu Lys Thr
            260                 265                 270
Thr Leu Glu Ser Leu Leu Ser Phe Phe Ser Cys Gln Ala Tyr Ser Gly
        275                 280                 285
Gly Lys Gly Asn Cys Pro Arg Asp Ile Ser Lys Thr Ile Lys Glu Ile
    290                 295                 300
Phe Leu Leu Thr Asp Asp Asn Lys
305                 310
<210>142
<211>145
<212>PRT
<213>Chlamydia trachomatis
<400>142
Met Lys Phe Phe Cys Lys Leu Glu Ser Gly Ser Ser Leu Pro Glu Tyr
  1                 5                  10                  15
Ala Thr Ser Gly Ala Ser Gly Ala Asp Val Arg Ala Asn Ile Asn Glu
             20                  25                  30
Pro Ile Ala Ile Leu Pro Gly Gln Arg Ala Leu Ile Pro Thr Gly Ile
         35                  40                  45
Ser Val Glu Ile Pro His Gly Tyr Glu Ile Gln Val Arg Ser Arg Ser
     50                  55                  60
Gly Leu Ala Ser Lys Tyr Gly Val Ile Val Leu Gln Ser Pro Gly Thr
 65                  70                  75                  80
Val Asp Ala Asp Tyr Arg Gly Glu Ile Arg Val Ile Leu Ala Asn Leu
                85                  90                  95
Gly Glu Xaa Thr Phe Ile Val Glu Pro Gly Met Arg Ile Ala Gln Leu
            100                 105                 110
Val Val Ala Lys Val Glu Gln Val Ser Phe Val Glu Thr Gln Glu Glu
        115                 120                 125
Leu Thr Ala Thr Ala Arg Gly Thr Gly Gly Phe Gly His Thr Gly Glu
    130                 135                 140
Cys
145
<210>143
<211>168
<212>PRT
<213>Chlamydia trachomatis
<400>143
Val Asp Leu Gly Ile Leu Gly Asn Val Lys Met Thr Cys Val Ala Asp
  1                 5                  10                  15
His Lys Gln Ala Val Thr Leu Ser Ser Leu Leu Ser Ser Asp Leu Ile
             20                  25                  30
Thr Phe Leu His Ser Asp Thr Arg Glu Asp Ile Leu Phe Glu Leu Ser
         35                  40                  45
```

```
Glu Leu Ala Ala Arg Ala Gly Leu Leu Glu Asp Arg Glu Ala Phe Phe
     50                  55                  60
Arg Ala Leu Leu Ala Arg Glu Asn Ile Met Ser Thr Gly Ile Gly Met
 65                  70                  75                  80
Gly Val Ala Ile Pro His Gly Lys Ile Asp Gly Ser Ala Asp Phe Phe
                85                  90                  95
Ile Ala Leu Gly Ile His Ser Glu Gly Ile Leu Trp Asp Ala Ile Asp
            100                 105                 110
Gly Leu Ser Val Arg Leu Val Phe Leu Ile Gly Gly Pro Ser Asp Ala
        115                 120                 125
Pro Ser Lys Tyr Leu Lys Leu Leu Ser Ala Leu Thr Gln Ser Leu Arg
    130                 135                 140
Asp Glu Ala Arg Arg Ser Gln Leu Leu Gln Val Gln Thr Val Glu Glu
145                 150                 155                 160
Val Met Ser Val Phe Ser Gly Val
                165
```

<210>144
<211>102
<212>PRT
<213>Chlamydia trachomatis

```
<400>144
Arg Ser Tyr Glu Cys Phe Phe Arg Ser Leu Val Met Asp Leu Arg Leu
  1                 5                  10                  15
Asp Gln Leu Ala Val Leu Leu Asp Val Ala Glu Asp Ser Ile Arg Gln
            20                  25                  30
Trp Val Ser Cys Gly Gly Ile Pro Ser Tyr Thr Ile Asn Asp Glu Leu
        35                  40                  45
Arg Phe Asn Arg Glu Glu Val Glu Asp Trp Leu Ile His Asn His Gly
     50                  55                  60
Val Ile Pro Asp Glu Lys Arg Glu Glu Lys Gly Glu Ser Lys Asp Leu
 65                  70                  75                  80
Ser Leu Arg Tyr Ser Leu Tyr Arg Ala Xaa Tyr Xaa Gly Arg Gly Ser
                85                  90                  95
Lys Lys Cys Ser Cys Arg
            100
```

<210>145
<211>174
<212>PRT
<213>Chlamydia trachomatis

```
<400>145
Met Gly Leu Phe Gln Met Lys Asn Glu Arg Lys Lys Gly Ser Pro Arg
  1                 5                  10                  15
Ile Cys His Leu Asp Ile Ala Tyr Ile Glu Leu Phe Ile Xaa Gly Gly
            20                  25                  30
Val Leu Lys Asn Val Leu Val Asp Ser Lys Glu Gly Ala Leu Arg Tyr
        35                  40                  45
Ala Ala His Tyr Ile Ala Asn Lys Phe Glu Leu Asp Pro Val Val Leu
     50                  55                  60
Phe Glu Met Leu Met His Arg Glu Ser Leu Met Ser Thr Gly Ile Gly
 65                  70                  75                  80
Glu Gly Ile Ala Leu Pro His Ala Lys Asp Phe Leu Ile Asn Val Gly
                85                  90                  95
Tyr Asp Ile Ile Val Pro Val Phe Leu Ser Gln Ser Ile Glu Tyr Gly
            100                 105                 110
Ala Leu Asp Gly Lys Pro Val Asp Thr Leu Phe Phe Leu Phe Ala Asn
        115                 120                 125
Gln Asp Arg Asn His Leu Asn Leu Val Asn Lys Ile Val His Leu Gly
    130                 135                 140
Met Ser Ile Gln Ala Arg Leu Phe Leu Lys Glu His Pro Asp Gln Pro
145                 150                 155                 160
Gln Leu Leu Ala Phe Val Lys Asn Trp Glu Ala Gln Ile His
```

165 170

<210>146
<211>400
<212>PRT
<213>Chlamydia trachomatis
<400>146

Val Ile Asn Lys Lys Arg Ile Val Arg Pro Ser Cys Glu Lys Ser Phe
1 5 10 15
Asn Val Ala Met Val Ile Pro Lys Val Asp Leu Gly Glu Ser Ala Val
20 25 30
Met Leu Gly Tyr Lys Leu Thr Ser Gln Leu Ala Met Leu Ser Ile Leu
35 40 45
Leu Thr Phe Thr His Thr Met Gly His Ala Ser Gln Met Ser Gln Thr
50 55 60
Leu Pro Thr Ile Met Glu Ala Gln Ala Glu Glu Ala Leu Gln Ala Asp
65 70 75 80
Arg Gly Val Ser Gly Gln Ala Leu Lys Lys Leu Arg Lys Lys Arg Cys
85 90 95
Ala Ser Arg Lys Ser Ala Trp Lys Ala Ser Phe Glu Lys Lys Asp Phe
100 105 110
Phe Ser Cys Ile Thr Asn Gly Leu Phe Ser Arg Asn His Glu Gln Arg
115 120 125
Leu Thr Ala Lys Lys Glu Asn Lys Ala Arg Gly Lys Glu Pro Arg Val
130 135 140
Val Val Gln Thr Thr Lys Lys Arg Gln Thr Thr Gln Ser Glu Lys Glu
145 150 155 160
Phe Phe Asp Trp Leu Cys Asn Ser Lys Arg Asp Asp Lys Arg Lys Leu
165 170 175
Leu Lys Lys Lys Pro Val Asn Thr Ser Leu Ala Lys Ser Glu Glu Leu
180 185 190
Ser Pro Lys Glu Ala Ala Ile Ala Ala Ala Arg Ala Ser Leu Ser Pro
195 200 205
Glu Glu Lys Arg Gln Leu Ile Arg Glu Trp Leu Ala Glu Glu Lys Thr
210 215 220
Ala Arg Lys Ser Gly Arg Ala Ala Cys Ala Val Ser Glu Asn Leu Lys
225 230 235 240
Arg Asp Gly Ser Ile Thr Ser Thr Leu Arg Tyr Asp Ala Glu Lys Ala
245 250 255
Leu Thr Thr Arg Val Lys Arg Asn Glu Asn Ser Val Asn Ala Arg Ala
260 265 270
Arg Gln Arg Ala Ala Leu Gln Lys Ala Lys Lys Ala Lys Thr Glu Lys
275 280 285
Pro Glu Ala Asp Glu Lys Ala Ala Glu Ala Val Ala Ala Ala Pro Thr
290 295 300
Lys Gln Ala His Lys Glu Pro Glu Asn Tyr Phe Ala Ala Thr Ala Ser
305 310 315 320
Thr Asn Asn Thr Asn Val Met Ser Tyr Leu Asn Ala His Gln Tyr Arg
325 330 335
Cys Asp Ser Ser Glu Thr Asp Trp Pro Cys Ser Ser Cys Val Thr Lys
340 345 350
Arg Arg Ala Asn Phe Gly Ile Ser Val Cys Thr Met Val Val Thr Val
355 360 365
Ile Ala Met Ile Val Gly Ala Val Ile Ile Ser Asn Ala Thr Asp Ser
370 375 380
Thr Val Ala Gly Ser Ser Gly Thr Gly Gly Gly Gly Ser Thr Gln Pro
385 390 395 400

<210>147
<211>347
<212>PRT
<213>Chlamydia trachomatis
<400>147

```
Asp Ala Thr Lys Ile Arg Trp Cys Phe Phe Pro Gln Ser Asn Thr Leu
 1               5                  10                  15
Ser His Ala Ser Arg Thr Leu Tyr Thr Val Leu Lys Val Ala Leu Ser
            20                  25                  30
Leu Gly Val Leu Ala Gly Val Ala Thr Leu Val Val Phe Leu Pro Pro
        35                  40                  45
Ser Leu Pro Phe Ile Ala Val Ile Gly Val Ser Ser Leu Ala Leu Gly
    50                  55                  60
Met Ala Ser Phe Leu Met Ile Arg Gly Ile Lys Tyr Leu Leu Glu His
65                  70                  75                  80
Ser Pro Leu Asn Arg Lys Gln Leu Ala Lys Asp Ile Gln Lys Thr Ile
                85                  90                  95
Ser Pro Asp Val Trp Ala Ser Met Val His Tyr Gln His Gln Leu Leu
            100                 105                 110
Ser His Leu His Glu Thr Leu Leu Asp Glu Ala Ile Thr Ala Arg Trp
        115                 120                 125
Gly Glu Pro Phe Phe Ile Glu His Ala Asn Leu Lys Ala Lys Ile Glu
    130                 135                 140
Asp Leu Thr Lys Gln Tyr Asp Ile Leu Asn Ala Ala Phe Asn Lys Ser
145                 150                 155                 160
Leu Gln Gln Asp Glu Ala Leu Arg Ser Gln Val Glu Lys Arg Ala Tyr
                165                 170                 175
Leu Phe Pro Ile Pro Asn Asn Asp Glu Asn Ala Lys Thr Lys Glu Ser
            180                 185                 190
Gln Leu Leu Asp Ser Glu Asn Asp Ser Asn Ser Glu Phe Gln Glu Ile
        195                 200                 205
Ile Asn Lys Gly Leu Glu Ala Ala Asn Lys Arg Arg Ala Asp Ala Lys
    210                 215                 220
Ser Lys Phe Tyr Thr Glu Asp Glu Thr Ser Asp Lys Lys Phe Ser Ile
225                 230                 235                 240
Trp Lys Pro Thr Lys Asn Leu Ala Leu Glu Asp Leu Trp Arg Val His
                245                 250                 255
Asp Glu Ala Cys Asn Glu Glu Gln Gln Ala Leu Leu Leu Glu Asp Tyr
            260                 265                 270
Met Ser Tyr Lys Thr Ser Glu Cys Gln Ala Ala Leu Gln Lys Val Ser
        275                 280                 285
Gln Glu Leu Lys Ala Ala Gln Lys Ser Phe Pro Val Leu Glu Lys His
    290                 295                 300
Ala Leu Asp Arg Ser Tyr Glu Ser Ser Leu Thr Met Met Asp Leu Ala
305                 310                 315                 320
Arg Ala Asn Gln Glu Thr His Arg Leu Leu Asn Ile Leu Ser Glu Leu
                325                 330                 335
Gln Gln Leu Ala Gln Tyr Leu Leu Asp Asn His
            340                 345
<210>148
<211>222
<212>PRT
<213>Chlamydia trachomatis
<400>148
His Thr Pro Lys Thr Phe Pro Leu Lys Val His His Ser Phe Ser Asp
 1               5                  10                  15
Lys His Pro Gln Ile Ala Lys Ala Met Trp Ile Thr Gly Ile Ala Leu
            20                  25                  30
Ala Ala Leu Ser Leu Leu Ala Val Val Ala Cys Val Ile Ala Val Ser
        35                  40                  45
Ala Gly Gly Ala Ala Ile Pro Leu Thr Val Val Gly Gly Ile Ala Ala
    50                  55                  60
Met Ser Gly Leu Leu Ser Ala Ala Thr Ile Ile Cys Ser Ala Lys Lys
65                  70                  75                  80
Ala Leu Ala Gln Arg Lys Gln Lys Gln Leu Glu Ala Ser Leu Pro Leu
                85                  90                  95
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Asp Asn Ala Thr Glu His Val Asn Tyr Leu Thr Ser Asp Thr Pro Tyr
            100                 105                 110
Phe Asn Gln Trp Glu Ser Leu Asp Ala Leu Asn Lys Gln Leu Ser Gln
        115                 120                 125
Ile Asp Leu Thr Ile Gln Ala Pro Glu Lys Lys Leu Leu Lys Glu Val
    130                 135                 140
Leu Gly Ser Arg Tyr Asp Ser Ile Asn His Ser Ile Glu Glu Ile Ser
145                 150                 155                 160
Asp Arg Phe Thr Lys Met Leu Ser Leu Leu Arg Leu Arg Glu His Phe
                165                 170                 175
Tyr Arg Gly Glu Glu Arg Tyr Thr Pro Tyr Leu Thr Pro Pro Leu Leu
            180                 185                 190
Lys Lys Asn Arg Leu Leu Ile Gln Ile Thr Ser Asn Met Ile Arg Met
        195                 200                 205
Leu Pro Lys Phe Gly Gly Val Phe Ser Leu Lys Ala Ile His
    210                 215                 220
<210>149
<211>151
<212>PRT
<213>Chlamydia trachomatis
<400>149
Thr Lys Ala Phe Ser Gly Phe Ile Val Arg Lys Thr Val Ile Val Ala
  1                 5                  10                  15
Met Ser Gly Gly Val Asp Ser Ser Val Val Ala Tyr Leu Leu Lys Lys
             20                  25                  30
Gln Gly Glu Tyr Asn Val Val Gly Leu Phe Met Lys Asn Trp Gly Glu
         35                  40                  45
Gln Asp Glu Asn Gly Glu Cys Thr Ala Thr Lys Asp Phe Arg Asp Val
     50                  55                  60
Glu Arg Ile Ala Glu Gln Leu Ser Ile Pro Tyr Tyr Thr Val Ser Phe
 65                  70                  75                  80
Ser Lys Glu Tyr Lys Glu Arg Val Phe Ser Arg Phe Leu Arg Glu Tyr
                 85                  90                  95
Ala Asn Gly Tyr Thr Pro Asn Pro Asp Val Leu Cys Asn Arg Glu Ile
            100                 105                 110
Lys Phe Asp Leu Leu Gln Lys Lys Val Leu Glu Leu Lys Gly Asp Phe
        115                 120                 125
Leu Ala Thr Gly His Tyr Cys Arg Gly Gly Ala Asp Gly Thr Gly Phe
    130                 135                 140
Val Gln Arg Lys Arg Pro Gln
145                 150
<210>150
<211>203
<212>PRT
<213>Chlamydia trachomatis
<400>150
Asp Ala Leu Ser Asn Val Leu Phe Pro Leu Gly Gly Met Tyr Lys Thr
  1                 5                  10                  15
Glu Val Arg Arg Ile Ala Gln Glu Ala Gly Leu Ala Thr Ala Thr Lys
             20                  25                  30
Lys Asp Ser Thr Gly Ile Cys Phe Ile Gly Lys Arg Pro Phe Lys Ser
         35                  40                  45
Phe Leu Glu Gln Phe Val Ala Asp Ser Pro Gly Asp Ile Ile Asp Phe
     50                  55                  60
Asp Thr Gln Gln Val Val Gly Arg His Glu Gly Ala His Tyr Tyr Thr
 65                  70                  75                  80
Ile Gly Gln Arg Arg Gly Leu Asn Ile Gly Gly Met Glu Lys Pro Cys
                 85                  90                  95
Tyr Val Leu Ser Lys Asn Met Glu Lys Asn Ile Val Tyr Ile Val Arg
            100                 105                 110
Gly Glu Asp His Pro Leu Leu Tyr Arg Gln Glu Leu Leu Ala Lys Glu
```

```
        115                 120                 125
Leu Asn Trp Phe Val Pro Leu Gln Glu Pro Met Ile Cys Ser Ala Lys
    130                 135                 140
Val Arg Tyr Arg Ser Pro Asp Glu Lys Cys Ser Val Tyr Pro Leu Glu
145                 150                 155                 160
Asp Gly Thr Val Lys Val Ile Phe Asp Val Pro Val Lys Ala Val Thr
                165                 170                 175
Pro Gly Gln Thr Val Ala Phe Tyr Gln Gly Asp Ile Cys Leu Gly Gly
            180                 185                 190
Gly Val Ile Glu Val Pro Met Ile His Gln Leu
        195                 200
<210>151
<211>431
<212>PRT
<213>Chlamydia trachomatis
<400>151
Ser Trp Ser Ser Cys Thr Ser Gln Tyr Asp Gly Thr Thr Ser Asp Leu
  1               5                  10                  15
Met Arg Leu Glu Ala Glu Ile Glu Lys Thr Lys Gln Ala Lys Glu Gln
            20                  25                  30
Ala Ile Gly Thr Gln Glu Tyr Glu Lys Ala Ala Ser Leu Arg Asp Glu
        35                  40                  45
Glu Lys Lys Leu Arg Glu Lys Leu Gly Asn Met Lys Gln Gln Trp Glu
    50                  55                  60
Ser Asn Lys Glu Glu His Gln Val Pro Val Asp Glu Glu Ala Val Ala
65                  70                  75                  80
Gln Val Val Ser Val Gln Thr Gly Ile Pro Ala Ala Arg Leu Thr Glu
                85                  90                  95
Ala Glu Ser Glu Lys Leu Leu Thr Leu Glu Thr Thr Leu Gln Lys Lys
            100                 105                 110
Val Ile Gly Gln Ser Gln Ala Val Ala Ser Ile Cys Arg Ala Ile Arg
        115                 120                 125
Arg Ser Arg Thr Gly Ile Lys Asp Pro Asn Arg Pro Met Gly Ser Phe
    130                 135                 140
Leu Phe Leu Gly Pro Thr Gly Val Gly Lys Thr Leu Leu Ala Gln Gln
145                 150                 155                 160
Ile Ala Ile Glu Met Phe Gly Gly Glu Asp Ser Leu Ile Gln Val Asp
                165                 170                 175
Met Ser Glu Tyr Met Glu Lys Phe Ala Ala Thr Lys Met Met Gly Ser
            180                 185                 190
Pro Pro Gly Tyr Val Gly His Glu Glu Gly Gly His Leu Thr Glu Gln
        195                 200                 205
Val Arg Arg Arg Pro Tyr Cys Val Val Leu Phe Asp Glu Ile Glu Lys
    210                 215                 220
Ala His Pro Asp Ile Met Asp Leu Met Leu Gln Ile Leu Glu Gln Gly
225                 230                 235                 240
Arg Leu Thr Asp Ser Phe Gly Arg Lys Ile Asp Phe Arg Asn Thr Ile
                245                 250                 255
Ile Ile Met Thr Ser Asn Leu Gly Ala Asp Leu Ile Arg Lys Ser Gly
            260                 265                 270
Glu Ile Gly Phe Gly Leu Arg Ser His Met Asp Tyr Ala Val Ile Lys
        275                 280                 285
Glu Lys Ile Asp Ala Ala Val Lys Lys His Leu Lys Pro Glu Phe Ile
    290                 295                 300
Asn Arg Leu Asp Glu Ser Val Ile Phe Lys Pro Leu Glu Lys Glu Ala
305                 310                 315                 320
Leu Ser Glu Ile Ile His Leu Glu Ile Asn Lys Leu Gly Ser Arg Leu
                325                 330                 335
Gln Asn Tyr Gln Met Asp Leu Asn Ile Pro Asp Ser Val Ile Ser Phe
            340                 345                 350
Leu Val Thr Lys Gly His Ser Pro Glu Met Gly Ala Arg Pro Leu Arg
```

```
        355                 360                 365
Arg Val Val Glu Gln Tyr Leu Glu Asp Pro Leu Ala Glu Met Leu Leu
    370                 375                 380
Lys Glu Ser Cys Arg Gln Glu Ala Arg Lys Leu Arg Ala Arg Leu Thr
385                 390                 395                 400
Glu Glu Arg Val Val Phe Glu Arg Glu Glu Glu Ala Val Ser Ala Leu
                405                 410                 415
Ala Ile Glu Gly Asp Gly Ser Glu Pro Ile Thr Ala Asp Glu Ser
            420                 425                 430
```

<210>152
<211>438
<212>PRT
<213>Chlamydia trachomatis

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<400>152
Met Phe Glu Lys Phe Thr Asn Arg Ala Lys Gln Val Ile Lys Leu Ala
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Lys Lys Glu Ala Gln Arg Leu Asn His Asn Tyr Leu Gly Thr Glu His
            20                  25                  30
Ile Leu Leu Gly Leu Leu Lys Leu Gly Gln Gly Val Ala Val Asn Val
        35                  40                  45
Leu Arg Thr Leu Gly Val Asp Phe Asp Thr Ala Lys His Glu Val Glu
    50                  55                  60
Arg Leu Ile Gly Tyr Gly Pro Glu Ile Gln Val Tyr Gly Asp Pro Ala
65                  70                  75                  80
Leu Thr Gly Arg Val Lys Lys Ser Phe Glu Ser Ala Asn Glu Glu Ala
                85                  90                  95
Ala Leu Leu Glu His Asn Tyr Val Gly Thr Glu His Leu Leu Leu Gly
            100                 105                 110
Ile Leu Asn Gln Ser Asp Gly Val Ala Leu Gln Val Leu Glu Asn Leu
        115                 120                 125
His Val Asp Pro Lys Glu Ile Arg Lys Glu Ile Leu Lys Glu Leu Glu
    130                 135                 140
Thr Phe Asn Leu Gln Leu Pro Pro Ser Ser Ser Ile Thr Pro Arg Asn
145                 150                 155                 160
Thr Asn Ser Ser Ser Ser Ser Lys Ser Ser Ser Pro Leu Gly Gly His
                165                 170                 175
Thr Leu Gly Gly Asp Lys Pro Glu Lys Leu Ser Ala Leu Lys Ala Tyr
            180                 185                 190
Gly Tyr Asp Leu Thr Glu Met Phe Lys Glu Ser Arg Leu Asp Pro Val
        195                 200                 205
Ile Gly Arg Ser Ala Glu Val Glu Arg Leu Ile Leu Ile Leu Cys Arg
    210                 215                 220
Arg Arg Lys Asn Asn Pro Val Leu Val Gly Glu Ala Gly Val Gly Lys
225                 230                 235                 240
Thr Ala Ile Val Glu Gly Leu Ala Gln Lys Ile Val Ser Gly Glu Val
                245                 250                 255
Pro Glu Ala Leu Arg Lys Lys Arg Leu Ile Thr Leu Asp Leu Ala Leu
            260                 265                 270
Met Ile Ala Gly Thr Lys Tyr Arg Gly Gln Phe Glu Glu Arg Ile Lys
        275                 280                 285
Ala Val Met Asp Glu Val Arg Lys His Gly Asn Ile Leu Leu Phe Ile
    290                 295                 300
Asp Glu Leu His Thr Ile Val Gly Ala Gly Ala Ala Glu Gly Ala Ile
305                 310                 315                 320
Asp Ala Ser His Ile Leu Lys Pro Ala Leu Ala Arg Gly Glu Ile Gln
                325                 330                 335
Cys Ile Gly Ala Thr Thr Leu Asp Glu Tyr Arg Lys His Ile Glu Lys
            340                 345                 350
Asp Ala Ala Leu Glu Arg Arg Phe Gln Lys Ile Val Val Gln Pro Pro
        355                 360                 365
Ser Val Asp Glu Thr Val Glu Ile Leu Arg Gly Leu Lys Lys Lys Tyr
```

```
    370                 375                 380
Glu Glu His His Asn Val Phe Ile Thr Asp Glu Ala Leu Val Ala Ala
385                 390                 395                 400
Ala Lys Leu Ser Asp Gln Tyr Val His Gly Arg Phe Leu Pro Asp Lys
                405                 410                 415
Ala Ile Asp Leu Leu Asp Glu Ala Gly Ala Arg Val Arg Val Asn Thr
            420                 425                 430
Met Gly Gln Leu Arg Thr
        435
<210>153
<211>240
<212>PRT
<213>Chlamydia trachomatis
<400>153
Ile Met Arg Thr Arg Val Ile Asp Ser Ile Arg Gly Thr Pro Lys Asp
  1               5                  10                  15
Leu Met Gln Lys Asp Arg Leu Leu Leu Asp Ser Leu Arg Lys Gly Glu
            20                  25                  30
Val Ile Leu His Leu Tyr Glu Trp Glu Gly Ile Phe Pro Leu Thr Tyr
        35                  40                  45
Gly Cys Phe Ile Lys Pro Glu Arg Phe Leu Lys Ala Asn Trp Glu Ser
    50                  55                  60
Leu Gly Val Ser Ala Ala Ser Arg Pro Thr Gly Gly Gly Val Thr Phe
 65                  70                  75                  80
His Asn Ser Asp Tyr Ala Phe Ser Leu Leu Val Ser Ser Glu His Pro
                85                  90                  95
Leu Tyr Gln Asp Ser Ile Leu Ala Asn Tyr His Thr Val Asn Arg Phe
            100                 105                 110
Val Leu Lys Thr Ile Asn Lys Leu Phe Gly Leu Glu Gly Ser Leu Ser
        115                 120                 125
Pro Ile Glu Val Ser Thr Asp Arg Ala Glu Ser Ser Asn Phe Cys Val
    130                 135                 140
Ala Lys Thr Ser Lys Tyr Asp Val Leu Ile Gly Asn Arg Lys Val Gly
145                 150                 155                 160
Gly Ala Ala Gln Arg Ser Val Lys Gln Gly Phe Leu His Gln Gly Ser
                165                 170                 175
Ile Phe Leu Ser Gly Asn Ser Leu Asp Phe Tyr Arg Asn Ile Leu Leu
            180                 185                 190
Pro Asp Leu Val Asp Lys Ile Gly Pro Glu Val Glu Lys Ser Ala Phe
        195                 200                 205
Phe Pro Leu Gly Met Glu Ala Ser Ser Thr Val Leu Lys Glu Val Arg
    210                 215                 220
Lys Glu Val Lys Asp Ser Leu Met Arg Ile Phe Met Gln Glu Gly Ile
225                 230                 235                 240
<210>154
<211>489
<212>PRT
<213>Chlamydia trachomatis
<400>154
Arg Leu Phe Asp Ala Asp Leu Tyr Ala Gly Gly Asp Leu Ile Arg Met
  1               5                  10                  15
Lys Met Ala Phe Leu Arg Lys Ile Phe Val Phe Val Ala Cys Val Val
            20                  25                  30
Ser Leu Asn Gly Phe Ala His Thr Ile Ala Ile Pro Asp Gly Asp Lys
        35                  40                  45
Lys Ala Lys Val Leu Ile His Asp Asn Gly Tyr Glu Met Tyr Glu His
    50                  55                  60
Leu Leu Ala Ala Ile Ser Ser Ala Lys Tyr Thr Val Glu Leu Cys Pro
 65                  70                  75                  80
Cys Leu Ala Gly Gly Glu Ile Leu Ser Thr Val Leu Gln Arg Leu Glu
                85                  90                  95
```

```
Gln Arg Met Glu Glu Val Pro Ala Leu Val Ser Tyr Ile Leu Val Gln
            100                 105                 110
Pro Thr Cys Ile Asp Asp Asn Asp Arg Lys Asn Leu Lys Thr Leu Gln
        115                 120                 125
Glu Asn Tyr Pro Asp Arg Phe Phe Tyr Leu Phe Ser Asp Trp Pro Pro
    130                 135                 140
Tyr Cys Asn Val Phe Phe Pro Asn Val Thr Glu Ser His Thr Lys Leu
145                 150                 155                 160
Ser Ile Val Asp Gly Lys Tyr Ile Phe Ile Gly Gly Ser Asn Leu Glu
                165                 170                 175
Asp Leu Gln Cys Ser Lys Gly Asp Val Asp Leu Glu Val Ser Asp Ser
            180                 185                 190
Pro Arg Ala Val Ile Gly Gly Val Leu Arg Pro Ser Ala Met Arg Asp
        195                 200                 205
Gln Asp Val Thr Ile Val Ser Glu Glu Tyr Gly Ala Leu Leu Arg Lys
    210                 215                 220
Glu Phe Cys Ala His Tyr Ala Leu Trp Lys Asp Phe Thr Gln Lys Leu
225                 230                 235                 240
Trp Leu Asn Lys Lys Leu Asp Asp Phe Arg Gly Ile Asp Pro Ile Asn
                245                 250                 255
Leu Ser Ile Glu Lys Ala Arg Ser Ser Phe Cys Ala Met Ile Glu Thr
            260                 265                 270
Ser Leu Cys Ala Val Ser Val Pro Leu Asp Lys Met His Phe Ile Phe
        275                 280                 285
Ser Gly Pro Asp Glu Ser Asn Asn Thr Ile Ala Glu Glu Tyr Val Arg
    290                 295                 300
Leu Ile Asn Gln Ala Gln His Ser Ile Arg Ile Ala Gln Met Phe Phe
305                 310                 315                 320
Ile Pro Val Ala Lys Ile Tyr Asp Ser Leu Met Ala Ala Cys Trp Asp
                325                 330                 335
Arg Gly Val Glu Ile Tyr Leu Val Thr Asn Gly Arg Thr Asp Arg Ser
            340                 345                 350
Pro Glu Ile Thr Arg Ser Tyr Ala Trp Gly Asn Arg Ile Asn Tyr Phe
        355                 360                 365
Pro Leu Thr Phe Gly Ser Arg Pro Leu Leu Trp Glu Arg Phe Leu Tyr
    370                 375                 380
Ser Pro Ser Arg Ala Ser Met Lys Phe Tyr Val Ser Glu Phe Tyr Val
385                 390                 395                 400
Ala Asn Thr Gln Leu His Lys Lys Cys Met Leu Val Asp Asp His Ile
                405                 410                 415
Leu Val Ile Gly Ser Tyr Asn Phe Gly Lys Lys Ser Asn Asp Cys Asp
            420                 425                 430
Tyr Glu Cys Ile Val Val Ile Asp Ser Lys Glu Ala Val Ser Lys Ala
        435                 440                 445
Gln Val Val Phe Glu Lys Asp Leu Arg Leu Ser Lys Ser Val Thr His
    450                 455                 460
Asp Asp Ile Ile Asn Trp Tyr Phe Asp Pro Val His Tyr Cys Leu Gly
465                 470                 475                 480
Tyr Leu Glu Gln Arg Tyr Met Pro Ser
                485
```

<210>155
<211>286
<212>PRT
<213>Chlamydia trachomatis
<400>155

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Phe Ser Phe Phe Phe Leu Lys Gly Leu Phe Ser Lys Lys Lys Gly Leu
  1               5                  10                  15
Leu Leu Ala Phe Phe Asn Lys His Gln Lys Lys Phe Ile Gly Leu Val
            20                  25                  30
Ile Ala Gly Val Cys Leu Ser Gly Val Gly Val Ser Val Gly Gln Thr
        35                  40                  45
```

```
Val Lys Lys Thr Asn Lys Leu Gly Ser Gly Lys Thr Val Tyr Arg Thr
     50                  55                  60
Pro Ser Gly Arg Lys Tyr Ser Glu Lys Glu Phe Leu Leu Leu Lys His
 65                  70                  75                  80
Phe Leu Ser Asn Glu Ala Tyr Pro Phe Thr Gly Asn Pro Arg Glu Trp
                 85                  90                  95
Asn Phe Leu Asn Glu Gly Leu Leu Thr Glu Arg Phe Leu Thr Asn Lys
            100                 105                 110
Leu Gly Glu Lys Leu Phe Leu Ser Ile Tyr Lys Ser Gly Phe Pro Ala
        115                 120                 125
Phe Asp Lys Glu Arg Ser Tyr Glu Gly Tyr Arg Arg Phe Asp Ala Pro
    130                 135                 140
Phe Ile Ser Ser Glu Glu Val Trp Lys Ser Ser Ala Pro Gln Leu Arg
145                 150                 155                 160
Glu Ala Phe His Ile Phe Gln Gln Leu Thr Asp Pro Val Ser Pro Glu
                165                 170                 175
Gly Phe Ala Val Arg Val Arg Leu Phe Leu Glu Glu Lys Lys Phe Pro
            180                 185                 190
His Tyr Val Leu Arg Gln Met Leu Glu Tyr Arg Arg Gln Met Phe Asn
        195                 200                 205
Leu Pro Val Asp Asn Ser Leu Val Gln Gly Arg Asp Leu Arg Leu Phe
    210                 215                 220
Gly Tyr Lys Asn Val Lys Asp Trp Phe Gly Asp Lys Tyr Ile Ser Ser
225                 230                 235                 240
Val Thr Glu Ala Met Leu Cys Phe Ile Asp Glu Gln Lys Lys Lys Val
                245                 250                 255
Gly Met Pro Ser Leu Lys Glu Ala Arg Gln Asp Phe Tyr Asp Lys Ala
            260                 265                 270
Gln Met His Leu Pro Asp Leu Val Asn Met Leu Ser Leu Ile
        275                 280                 285
<210>156
<211>435
<212>PRT
<213>Chlamydia trachomatis
<400>156
Ser Ala Asp Ala Phe Ala Arg Leu Ser Lys His Ala Glu Phe Asn Leu
  1                 5                  10                  15
Thr Phe Glu Gln Leu Val Ala Ser Phe Tyr Ala Phe Met Gly Val Glu
             20                  25                  30
Glu Ser Asp Phe Leu Gly Met Tyr Arg Glu Ile Leu Leu Tyr Lys Lys
         35                  40                  45
Ala Leu Leu Ser Leu Glu Gly Ala Val Ser Phe Asp Tyr Tyr Pro Leu
     50                  55                  60
Gln Lys Phe Phe Ser Met Gly Lys Asp Ser Val Ser Val Glu Leu Phe
 65                  70                  75                  80
His Leu Pro Asp Ser Leu Val Phe Lys Asp Lys Glu Asp Leu Glu Ala
                 85                  90                  95
Phe Glu Thr Tyr Leu His Leu Thr Ala Phe Pro Ser Val His Val Leu
            100                 105                 110
Asp Val Pro Thr Lys Ala Phe Pro Ile Glu Arg Val Arg Ser Lys Ala
        115                 120                 125
Glu Cys Leu Val Gly Lys Arg Phe Ala Val Ser Tyr Gln Ser Val Lys
    130                 135                 140
Leu Ala Asp Leu Glu Lys Tyr Val Pro Met Ala Gln Val Tyr Gln Trp
145                 150                 155                 160
Tyr Gln Asn Pro Glu Asn Phe Glu Glu Ile Leu Leu Glu Phe Pro Glu
                165                 170                 175
Leu Glu Thr Ser Ser Ser Leu Arg Asp Ile Leu Asn Leu Lys Pro Thr
            180                 185                 190
Ile Val Glu Lys Ala His Ser Tyr Val Arg Lys Ala Ile Leu Arg Ala
        195                 200                 205
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        195                 200                 205
Asp Pro Glu Arg Ile Gln Ser Glu Leu Ala Lys Lys Glu Arg Gln Glu
    210                 215                 220
Glu Glu Leu Phe Leu Ser Ile Gly Lys Asp His Val Leu Pro Gly Ile
225                 230                 235                 240
Gln Asn Gly Val Arg Leu Ala Asn Val Leu Met Gln Gln Asp Ser Val
                245                 250                 255
Asp Ser Tyr Thr Gln Asp Asn Glu His Phe Tyr Ser Ile Ser Val Ile
            260                 265                 270
Ser Arg Ala Asp Lys Asp Glu Val Leu Pro Tyr Lys Glu Val Leu Arg
        275                 280                 285
Lys Gly Leu Lys Lys Val Leu Leu Glu Lys Tyr Lys Ala Glu Glu Arg
    290                 295                 300
Ile Ser Arg Val Leu Thr His Leu Gln Glu Ser Phe Pro Asn Ser Gln
305                 310                 315                 320
Gly Gln Asp Leu Tyr Gln Arg Arg Leu Val Arg Phe Val Lys Ala Phe
                325                 330                 335
Gln Thr Gly Lys Leu Ala Gln Gly Asp Leu Phe Gly Gly Leu Glu Lys
            340                 345                 350
Thr Met Lys Thr Phe Ser Arg Gly Asp Gln Gly Ala Pro Gln Glu Phe
        355                 360                 365
Glu Asp Met Phe Ala Leu Lys Glu Gly Gln Val Ser Asp Val Leu Phe
    370                 375                 380
Asp Leu Asp Lys Gly Pro Phe Tyr Tyr Thr Ala Ile Ser Lys Ser Cys
385                 390                 395                 400
Cys Asp Tyr Pro Val Ser Leu Asp Lys Leu Leu Phe Ala Lys Ser His
                405                 410                 415
Leu Asn Glu Glu Phe Leu Arg Pro Tyr Leu Glu Glu Val Phe Phe His
            420                 425                 430
Asn Pro Ser
        435
<210>157
<211>137
<212>PRT
<213>Chlamydia trachomatis
<400>157
Asp Pro Ile Trp Lys Lys Phe Phe Phe Thr Thr Leu Val Lys Gly Leu
  1               5                  10                  15
Ser Arg Thr Asn Met Lys Gly Gln Lys Tyr Tyr Ser Asp Tyr His Val
            20                  25                  30
Trp Ile Glu Pro Ile His Ser Arg Ile Val Lys Leu Gly Leu Ser Ser
        35                  40                  45
Gln Met Ala Gly Xaa Leu Gly Asn Ile Leu His Ile Asp Leu Pro Ser
    50                  55                  60
Val Gly Ser Phe Ile Lys Glu Gly Glu Glu Leu Cys Ile Leu Glu Ser
65                  70                  75                  80
Ser Lys Ser Ala Ile Glu Val Leu Ser Pro Val Ser Gly Glu Val Leu
                85                  90                  95
Glu Val Asn Thr Ala Leu Glu Asp Asp Ile Leu Pro Val Asn Asn Ala
            100                 105                 110
Thr Glu Ser Glu Gly Trp Phe Val Val Leu Gln Leu Thr Glu Asp Phe
        115                 120                 125
Arg Ser Glu Ser Phe Ser Leu Glu Pro
    130                 135
<210>158
<211>244
<212>PRT
<213>Chlamydia trachomatis
<400>158
Met Trp Leu Gly Asp Tyr Ser Leu Leu Asn Leu Leu Gly Ile Phe Leu
  1               5                  10                  15
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Gln Ala Thr Phe Ile Gln Asn Ile Leu Leu Ser Thr Phe Leu Gly Met
            20                  25                  30
Cys Ser Tyr Leu Ala Cys Ser Ser Arg Leu Ser Thr Ala Asn Gly Leu
        35                  40                  45
Gly Met Ser Val Ala Leu Val Leu Thr Ile Thr Gly Ser Ile Asn Trp
    50                  55                  60
Leu Val His Tyr Phe Ile Thr Lys Pro Gly Ala Leu Ala Trp Leu Ser
65                  70                  75                  80
Pro Ala Leu Ala Asn Ile Asp Leu Ser Phe Leu Glu Leu Ile Met Phe
                85                  90                  95
Ile Val Val Ile Ala Ala Phe Thr Gln Ile Leu Glu Leu Leu Leu Glu
            100                 105                 110
Arg Phe Ser Arg Asn Leu Tyr Leu Ala Leu Gly Ile Phe Leu Pro Leu
        115                 120                 125
Ile Ala Val Asn Cys Ala Ile Leu Gly Gly Val Leu Phe Gly Ile Thr
    130                 135                 140
Arg Asn Tyr Pro Phe Leu Pro Met Val Val Phe Ser Leu Gly Ser Gly
145                 150                 155                 160
Cys Gly Trp Trp Leu Ala Ile Val Leu Phe Ala Thr Ile Arg Glu Lys
                165                 170                 175
Leu Ala Tyr Ser Asp Val Pro Gln His Leu Arg Gly Thr Gly Ile Ser
            180                 185                 190
Phe Ile Thr Thr Gly Leu Met Ala Met Ala Phe Met Gly Leu Thr Gly
        195                 200                 205
Ile Asp Ile Ser Lys Pro Thr Thr Ser Lys Pro Ala Xaa Xaa Met Asn
    210                 215                 220
Ile Ala Thr Asp Ser Pro Gln Pro Asn Thr His Ser Ser Ser Glu Glu
225                 230                 235                 240
Pro Lys Ala Ser
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<210>159
<211>217
<212>PRT
<213>Chlamydia trachomatis
<400>159

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Val Glu Ser Leu Met Thr Thr Asn Lys Ser Tyr Leu Thr Tyr Phe Thr
  1                 5                  10                  15
Asp Ala Leu Trp Ile Asn Asn Gln Pro Leu Ile Ala Ile Leu Gly Ile
            20                  25                  30
Cys Ser Ala Leu Ala Val Thr Thr Thr Val Thr Thr Ala Leu Thr Met
        35                  40                  45
Gly Phe Ala Val Ser Phe Val Thr Gly Cys Ser Ser Phe Val Val Ser
    50                  55                  60
Leu Leu Arg Lys Ile Thr Pro Glu Ser Val Arg Met Ile Ala Gln Leu
65                  70                  75                  80
Ile Ile Ile Ser Leu Phe Val Ile Leu Ile Asp Gln Phe Leu Lys Ala
                85                  90                  95
Phe Phe Phe Thr Ile Ser Lys Thr Leu Ser Val Phe Val Gly Leu Ile
            100                 105                 110
Ile Thr Asn Cys Ile Val Met Gly Arg Ala Glu Ser Met Ala Arg His
        115                 120                 125
Val Ser Pro Ile Pro Ala Phe Leu Asp Gly Leu Gly Ser Gly Leu Gly
    130                 135                 140
Tyr Gly Trp Val Leu Val Cys Ile Ser Ile Ile Arg Glu Leu Phe Gly
145                 150                 155                 160
Phe Gly Thr Ile Leu Gly Phe Arg Val Ile Pro Glu Ile Leu Tyr Ala
                165                 170                 175
Ser Ala Ala His Pro Asp Gly Tyr Glu Asn Leu Gly Leu Met Val Leu
            180                 185                 190
Ala Pro Ser Ala Phe Phe Leu Leu Gly Ile Met Ile Trp Ile Val Asn
        195                 200                 205
```

Sequence Listing

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Ile Ile Arg Ala Pro Lys Thr Lys Arg
    210                 215
<210>160
<211>316
<212>PRT
<213>Chlamydia trachomatis
<400>160
Met Ala Ser Lys Ser Arg His Tyr Leu Asn Gln Pro Trp Tyr Ile Ile
  1               5                  10                  15
Leu Phe Ile Phe Val Leu Ser Leu Ile Ala Gly Thr Leu Leu Ser Ser
            20                  25                  30
Val Tyr Tyr Val Leu Ala Pro Ile Gln Gln Gln Ala Ala Glu Phe Asp
        35                  40                  45
Arg Asn Gln Gln Met Leu Met Ala Ala Gln Val Ile Ser Ser Asp Asn
    50                  55                  60
Thr Phe Gln Val Tyr Glu Lys Gly Asp Trp His Pro Ala Leu Tyr Asn
65                  70                  75                  80
Thr Lys Lys Gln Leu Leu Glu Ile Ser Ser Thr Pro Pro Lys Val Thr
                85                  90                  95
Val Thr Thr Leu Ser Ser Tyr Phe Gln Asn Phe Val Arg Val Leu Leu
            100                 105                 110
Thr Asp Thr Gln Gly Asn Leu Ser Ser Phe Glu Asp His Asn Leu Asn
        115                 120                 125
Leu Glu Glu Phe Leu Ser Gln Pro Thr Pro Val Ile His Gly Leu Ala
    130                 135                 140
Leu Tyr Val Val Tyr Ala Ile Leu His Asn Asp Ala Ala Ser Ser Lys
145                 150                 155                 160
Leu Ser Ala Ser Gln Val Ala Lys Asn Pro Thr Ala Ile Glu Ser Ile
                165                 170                 175
Val Leu Pro Ile Glu Gly Phe Gly Leu Trp Gly Pro Ile Tyr Gly Phe
            180                 185                 190
Leu Ala Leu Glu Lys Asp Gly Asn Thr Val Leu Gly Thr Ser Trp Tyr
        195                 200                 205
Gln His Gly Glu Thr Pro Gly Leu Gly Ala Asn Ile Ala Asn Pro Gln
    210                 215                 220
Trp Gln Lys Asn Phe Arg Gly Lys Lys Val Phe Leu Val Ser Ala Ser
225                 230                 235                 240
Gly Glu Thr Asp Phe Ala Lys Thr Thr Leu Gly Leu Glu Val Ile Lys
                245                 250                 255
Gly Ser Val Ser Ala Ala Leu Gly Asp Ser Pro Lys Ala Ala Ser Ser
            260                 265                 270
Ile Asp Gly Ile Ser Gly Ala Thr Leu Thr Cys Asn Gly Val Thr Glu
        275                 280                 285
Ser Phe Ser His Ser Leu Ala Pro Tyr Arg Ala Leu Leu Thr Phe Phe
    290                 295                 300
Ala Asn Ser Lys Pro Ser Gly Glu Ser His Asp His
305                 310                 315
<210>161
<211>344
<212>PRT
<213>Chlamydia trachomatis
<400>161
Leu Leu Arg Phe Glu Arg Val Thr Phe Ser Thr Phe Leu Ser Asp Thr
  1               5                  10                  15
Met Leu Glu Lys Leu Val Asp Ser Leu Trp Lys Ile Cys Arg Lys Ser
            20                  25                  30
Lys Phe Gln His Met Thr Pro Ile Ala Asp Ala Val Asp Thr Phe Cys
        35                  40                  45
Phe Glu Pro Leu His Thr Pro Ser Ser Pro Pro Phe Val Arg Asp Ala
    50                  55                  60
Val Asp Val Lys Arg Trp Met Met Leu Val Val Ile Ala Leu Met Pro
```

```
 65                  70                  75                  80
Thr Ile Phe Ala Ala Val Trp Asn Ser Gly Leu Gln Ala Leu Val Tyr
                85                  90                  95
Gln Ser Ser Asn Pro Arg Ile Met Glu Ala Xaa Leu His Ile Ser Gly
            100                 105                 110
Phe Lys Ser Tyr Phe Ser Phe Val Ser Gln Glu Ile Gly Ile Gly Ser
        115                 120                 125
Val Leu Phe Ala Gly Cys Lys Ile Phe Leu Pro Leu Leu Phe Ile Ser
    130                 135                 140
Tyr Ala Val Gly Gly Thr Cys Glu Val Leu Phe Ala Ile Ile Arg Lys
145                 150                 155                 160
His Lys Ile Ala Glu Gly Leu Leu Val Thr Gly Met Leu Tyr Pro Leu
                165                 170                 175
Ile Leu Pro Pro Thr Ile Pro Tyr Trp Met Ala Ala Leu Gly Ile Ala
            180                 185                 190
Phe Gly Val Val Met Gly Lys Glu Leu Phe Gly Gly Thr Gly Met Asn
        195                 200                 205
Ile Leu Asn Pro Ala Leu Thr Gly Arg Ala Phe Leu Phe Phe Thr Phe
    210                 215                 220
Pro Ala Lys Met Ser Gly Asp Val Trp Val Gly Ser Asn Pro Ser Arg
225                 230                 235                 240
Ile Lys Glu Ser Leu Ala Thr Met Ser Ser Leu Ala Glu Lys Ser His
                245                 250                 255
Phe Asp Gly Phe Ser Gln Ser Thr Cys Leu Gln Ile Leu Asn Ser Thr
            260                 265                 270
Pro Pro Ser Val Lys Arg Val His Ile Asp Ala Ile Ala Ser Asn Ile
        275                 280                 285
Leu Asn Leu Glu His Val Pro Thr Gln Asp Val Leu Gln Thr Gln Phe
    290                 295                 300
Ala Thr Trp Ala Glu Ser Tyr Pro Gly Leu Thr Val Asp Gln Leu Ser
305                 310                 315                 320
Leu Glu Xaa Thr Ser Lys Phe Cys Asn Tyr Ser Asn Asn Arg Arg Arg
                325                 330                 335
Phe Arg Ala Ser Ser Cys Thr Leu
            340
<210>162
<211>198
<212>PRT
<213>Chlamydia trachomatis
<400>162
Val Gly Arg Gly Met Phe Lys Arg Pro Ala Lys Asn Phe Phe Asp Glu
  1                 5                  10                  15
Val Gln Thr Leu Tyr Glu Asp Ser Gly Ala Asn Ser Thr Ser Tyr Ser
            20                  25                  30
Ile Tyr Pro Gln Arg Thr Glu Arg Leu Glu Asn His Ser Asn Ile Phe
        35                  40                  45
Glu Pro Ala Lys Pro Ala Glu Thr Arg Leu Leu Ser Gln Glu Glu His
    50                  55                  60
Ser Gln Trp Thr Asp Gln Gln Glu Gly Leu Ala Thr Gln Glu Ser Ser
65                  70                  75                  80
Phe Pro Glu Glu Pro Glu Thr Thr Leu Gly Glu Gly Val Ser Phe Lys
                85                  90                  95
Gly Glu Leu Thr Phe Glu Arg Leu Leu Arg Ile Asp Gly Thr Phe Glu
            100                 105                 110
Gly Ile Leu Val Ser Lys Gly Lys Ile Ile Val Gly Pro Gln Gly Tyr
        115                 120                 125
Val Lys Ala Asn Ile Glu Leu Glu Glu Ala Val Ile Ala Gly Val Val
    130                 135                 140
Glu Gly Asn Ile Thr Val Thr Gly Arg Val Ser Leu Gln Gly Arg Ala
145                 150                 155                 160
Met Val Thr Gly Asp Ile Gln Ala Gly Ser Leu Cys Val Asp Glu Gly
```

```
                165                 170                 175
Val Arg Leu Cys Gly Tyr Val Ser Ile Gln Gly Ala Pro Ser Asn Glu
            180                 185                 190
Gln Glu Glu Ile Asp Ser
        195
<210>163
<211>481
<212>PRT
<213>Chlamydia trachomatis
<400>163
Met Leu His Leu Arg Phe Phe Ser Arg Arg Arg Val His Tyr Arg Ile
  1               5                  10                  15
Leu Asn Ser Ser Ser Asp Lys Glu Asn Ala Met Leu Thr Cys Asn Asp
            20                  25                  30
Cys Ser Thr Trp Glu Gln Phe Val Asn Tyr Ile Lys Thr Arg Cys Ser
        35                  40                  45
Lys Thr Ala Phe Glu Asn Trp Ile Ala Pro Ile Gln Val Leu Glu Glu
    50                  55                  60
Ser Ser Glu Lys Ile Arg Leu Glu Ile Pro Asn Ile Phe Val Gln Ser
65                  70                  75                  80
Tyr Leu Leu Asp Asn Tyr Lys Lys Asp Leu Cys Ser Phe Val Pro Leu
                85                  90                  95
Asp Ala Glu Gly Asn Pro Ala Leu Glu Phe Val Val Ala Glu Ile Lys
            100                 105                 110
Arg Ser Ser Pro Leu Val Thr Pro Ser Ile Ala Lys Pro Ala Thr Glu
        115                 120                 125
Val Ser Glu Glu Asn Lys Asp Phe Gln Leu Lys Leu Asn Gly Ala Tyr
    130                 135                 140
Arg Phe Asp Asn Phe Ile Glu Gly Pro Ser Asn Gln Phe Val Lys Ser
145                 150                 155                 160
Ala Ala Leu Gly Ile Ala Ala Arg Pro Gly Arg Ser Tyr Asn Pro Leu
                165                 170                 175
Phe Ile His Gly Gly Val Gly Leu Gly Lys Thr His Leu Leu His Ala
            180                 185                 190
Val Gly His Tyr Val Arg Glu His His Lys Asn Leu Arg Ile His Cys
        195                 200                 205
Ile Thr Thr Glu Ala Phe Ile Asn Asp Leu Val His His Leu Arg Val
    210                 215                 220
Lys Ser Ile Asp Lys Met Lys Asn Phe Tyr Arg Ser Leu Asp Leu Leu
225                 230                 235                 240
Leu Val Asp Asp Ile Gln Phe Leu Gln Asn Arg Gln Asn Phe Glu Glu
                245                 250                 255
Glu Phe Cys Asn Thr Phe Glu Thr Leu Ile His Leu Ser Lys Gln Ile
            260                 265                 270
Val Val Thr Ser Asp Lys Pro Pro Gly Gln Leu Lys Leu Ser Glu Arg
        275                 280                 285
Ile Ile Ala Arg Met Glu Trp Gly Leu Val Ala His Val Gly Val Pro
    290                 295                 300
Asp Leu Glu Thr Arg Val Ala Ile Leu Gln His Lys Ala Glu Gln Lys
305                 310                 315                 320
Gly Leu Asn Ile Pro Asn Glu Met Ala Phe Tyr Ile Ala Asp His Val
                325                 330                 335
Tyr Gly Asn Val Arg Gln Leu Glu Gly Ala Ile Asn Lys Leu Thr Ala
            340                 345                 350
Tyr Cys Leu Leu Phe Asn Lys Pro Leu Thr Glu Thr Thr Val Arg Asp
        355                 360                 365
Thr Leu Lys Glu Leu Phe Arg Ala Pro Ser Lys Gln Lys Val Ser Val
    370                 375                 380
Glu Ser Ile Leu Lys Ser Val Ala Thr Val Phe Gln Val Lys Ile Gln
385                 390                 395                 400
Asp Leu Lys Gly Ser Ser Arg Ala Lys Asn Val Pro Leu Ala Arg Gln
```

```
                405                 410                 415
Val Ala Met Tyr Leu Ala Lys Thr Leu Ile Thr Asp Ser Leu Val Ala
            420                 425                 430
Ile Gly Ala Ala Phe Gly Lys Thr His Ser Thr Val Leu Tyr Ala Cys
        435                 440                 445
Lys Thr Ile Glu Gln Lys Ile Glu Lys Asp Ala Leu Leu Lys Asn Gln
    450                 455                 460
Ile Ser Leu Cys Lys Asn Asn Ile Ala Ile Asp Ser Pro Gln His Phe
465                 470                 475                 480
Val
```

<210>164
<211>134
<212>PRT
<213>Chlamydia trachomatis
<400>164

```
Arg Asn Pro Asn Gly Arg Arg Arg Ile Arg Asp Ile Ala Lys His Ala
  1               5                  10                  15
Gln Ile Leu Asp Met Thr Pro Lys Pro Ser Ala Leu Ser Thr Leu Met
             20                  25                  30
Gln Thr Asn Lys Lys Thr Cys Trp Ala Ser Phe Ser Pro Pro Thr Asn
         35                  40                  45
Phe His Lys Gln Arg Phe Ser Thr Pro Tyr Leu Val Pro Ser Leu Gly
     50                  55                  60
Ser Pro Asp Lys Gln Asp Gln Asp Met Glu Lys Ile Ser Ser Tyr Leu
 65                  70                  75                  80
Lys Val Leu Thr Arg Gly Lys Phe Ser Tyr Arg Ser Thr Ala Asp Thr
                 85                  90                  95
Leu Ser Arg Lys Asn Lys Arg Ser Ser Asp Gln Lys Arg Asn Gly Gln
            100                 105                 110
His Phe Glu Gln Glu Glu Leu Glu Ala Glu Glu Glu Val Phe Ser Thr
        115                 120                 125
Arg Arg His Ser Ile Ala
    130
```

<210>165
<211>282
<212>PRT
<213>Chlamydia trachomatis
<400>165

```
Leu Leu Cys Arg Arg Phe Pro Val Thr Asp Ser Ile Pro His Ile Pro
  1               5                  10                  15
Val Leu Val Lys Glu Ser Leu Ser Leu Phe Arg Gly Arg Asn Pro Val
             20                  25                  30
Val Phe Cys Asp Val Thr Val Gly Ala Gly Gly His Ala Glu Ala Phe
         35                  40                  45
Leu Thr Glu Phe Pro Ser Ile Glu Arg Tyr Asp Gly Ser Asp Arg Asp
     50                  55                  60
Leu Ser Ala Leu Ala Leu Ser Glu Asn Arg Leu Leu Pro Phe Lys Asp
 65                  70                  75                  80
Arg Val Arg Leu Arg His Ala Ser Phe Glu Glu Val Asp Thr Leu Thr
                 85                  90                  95
Ser Asp Gly Thr Tyr Asp Gly Val Leu Ala Asp Leu Gly Val Ser Ser
            100                 105                 110
Met Gln Leu Asn Asn Leu Glu Arg Gly Phe Ser Phe Gln Gly Glu Asp
        115                 120                 125
His Pro Leu Asp Met Arg Met Asp Thr Ser Arg Gly Met Thr Ala Ser
    130                 135                 140
Glu Val Leu Asn Ser Leu Arg Glu Glu Glu Ile Gly Glu Ile Phe Arg
145                 150                 155                 160
Asn Tyr Gly Glu Glu Pro Leu Trp Arg Ser Ala Ala Ala Ala Val Val
                165                 170                 175
```

Sequence Page - Seq Page 69

```
His Phe Arg Lys Lys Lys Lys Ile Leu Thr Val Lys Asp Leu Lys Asp
            180                 185                 190
Ala Thr Ser Gly Val Phe Pro Ser Tyr Arg Leu Arg Lys Lys Ile His
        195                 200                 205
Pro Leu Thr Leu Ile Phe Gln Ala Leu Arg Ile Tyr Val Asn Gln Glu
    210                 215                 220
Gly Ala Gln Leu Lys Val Leu Leu Asp Ser Ala Phe Arg Trp Leu Arg
225                 230                 235                 240
Pro Gly Gly Arg Leu Ala Val Ile Ser Phe Cys Ser Leu Asp Asp Arg
                245                 250                 255
Pro Val Lys Trp Ala Phe Arg Glu Ala Glu Ala Arg Gly Leu Gly Lys
            260                 265                 270
Ile Leu Thr Lys Lys Val Ile Met Pro Ser
        275                 280
<210>166
<211>185
<212>PRT
<213>Chlamydia trachomatis
<400>166
Leu Met Asn His Arg Arg Gln Leu Thr Leu Ile Val Val Gly Val Leu
  1               5                  10                  15
Ser Leu Tyr Ala Leu Leu Ile Val Arg Tyr Tyr Lys Ile Gln Ile Cys
             20                  25                  30
Asp Gly Glu Arg Trp Ala Val Glu Ala Ala Asn Gln His Glu Phe Arg
         35                  40                  45
Val Lys Asp Pro Phe Gln Arg Gly Thr Phe Phe Ala Asn Thr Ser Leu
     50                  55                  60
Arg Lys Gly Glu Lys Glu Gln Phe His Pro Leu Ala Ile Asp Ile Thr
 65                  70                  75                  80
Lys Phe His Leu Cys Leu Asp Ala Val Val Ile Pro Glu Glu Tyr Arg
                 85                  90                  95
Asp Glu Ile Ala Arg Met Val Val Val Met Val Gly Glu Gly Asp Tyr
            100                 105                 110
Gln Ser Ile Arg Ser Glu Phe Asp Arg Lys Ser Arg Tyr Arg Lys Leu
        115                 120                 125
Tyr Val Ser Leu Asp Val Ser Ile Arg Asp Arg Ile Leu Ser Trp Trp
    130                 135                 140
Lys Pro Tyr Ala Val Lys His Lys Ile Pro Ser Asn Ala Leu Phe Phe
145                 150                 155                 160
Ile Ser Asp Tyr Gln Arg Ser Tyr Pro Phe Gly Lys Leu Leu Gly Gln
                165                 170                 175
Val Leu His Thr Ser Gly Asp Lys Arg
            180                 185
<210>167
<211>348
<212>PRT
<213>Chlamydia trachomatis
<400>167
Asp Glu Lys Ser Gly Glu Ala Phe Pro Thr Gly Gly Leu Glu Ala Tyr
  1               5                  10                  15
Phe Asn Arg Leu Leu Glu Gly Glu Asn Gly Glu Arg Lys Leu Leu Arg
             20                  25                  30
Ser Pro Leu Asn Arg Leu Asp Val Asp Lys Val Thr Lys Ile Pro Arg
         35                  40                  45
Asp Gly Ser Asp Ile Tyr Leu Thr Ile Asp Ala Asn Val Gln Thr Ile
     50                  55                  60
Ala Glu Gln Glu Ile Ala Leu Gly Val Leu Glu Ala Lys Ala Arg Ser
 65                  70                  75                  80
Gly Arg Ala Ile Val Leu Asn Ser His Thr Gly Glu Ile Leu Ala Leu
                 85                  90                  95
Ala Gln Tyr Pro Phe Phe Asn Pro Arg Glu Tyr Arg Glu Tyr Phe Asn
```

09/09/2002 10:26:26

```
            100                 105                 110
Cys Asn Asp Arg Ile Glu Asp Thr Lys Val Lys Ala Val Ser Asp Val
        115                 120                 125
Phe Glu Pro Gly Ser Ile Met Lys Pro Ile Thr Val Ala Ile Ala Leu
    130                 135                 140
Leu Ala Asn Glu Glu Met Gln Lys Arg Ala Gly Glu Asn Leu Phe Asp
145                 150                 155                 160
Pro Tyr Glu Pro Leu Asp Val Ser Arg Arg Val Phe Pro Gly Arg Gln
                165                 170                 175
Lys Met Pro Leu Lys Asp Ile Val Ser Asn Arg Tyr Leu Asn Met Tyr
            180                 185                 190
Met Ala Ile Gln Lys Ser Ser Asn Val Tyr Met Ala Gln Leu Ala Asp
        195                 200                 205
Arg Ile Val Gln Lys Leu Gly Ala Asp Trp Tyr Glu Gln Arg Leu Gln
    210                 215                 220
Asp Phe Gly Phe Gly Lys Arg Thr Gly Ile Glu Leu Pro Ala Glu Ala
225                 230                 235                 240
Val Gly Leu Val Pro Ser Arg Lys Arg Phe His Lys Asn Gly Ser Pro
                245                 250                 255
Glu Trp Ser Leu Ser Thr Pro Tyr Ser Leu Ala Met Gly Tyr Asn Leu
            260                 265                 270
Leu Ala Thr Ser Met Gln Met Val Gln Ala Tyr Ala Val Phe Gly Asn
        275                 280                 285
Gly Gly Phe Leu Ile Arg Pro Thr Leu Val Arg Lys Ile Val Ser Pro
    290                 295                 300
Ser Gly Glu Glu Lys Ile Leu Ser Ser Asn Pro Lys Lys Ile Arg Val
305                 310                 315                 320
Leu Ser Glu Lys Ile Val Ala Gly Cys Cys Ser Cys Tyr Ala Phe His
                325                 330                 335
Asn Met Phe Arg Arg Asp Gly Asp Ser Cys Cys Tyr
            340                 345
<210>168
<211>138
<212>PRT
<213>Chlamydia trachomatis
<400>168
Leu Gln Asp Val Val Arg Ala Met Arg Phe Thr Thr Cys Leu Gly Gly
  1                 5                  10                  15
Thr Gly Ile Arg Ala Ala Thr Lys Gly Tyr Ser Ser Ala Gly Lys Thr
             20                  25                  30
Gly Thr Thr Glu Lys Leu Val Asp Gly Lys Tyr Asp Lys Lys Arg His
         35                  40                  45
Ile Ala Ser Phe Ile Gly Leu Thr Pro Ile Ala Ala Leu Ser Asp Thr
     50                  55                  60
Ala Val Pro Leu Val Ile Leu Val Ser Ile Asp Asp Pro Ala Tyr Gly
 65                  70                  75                  80
Val Arg Glu Asp Arg Thr Lys Asn Tyr Met Gly Gly Arg Cys Ala Ala
                 85                  90                  95
Pro Val Phe Ser Arg Ile Ala Ser Arg Val Leu Pro Tyr Leu Gly Val
            100                 105                 110
Pro Leu Asp Glu Gln Leu His Thr Tyr Arg Glu Glu Val Ser Gln Leu
        115                 120                 125
Lys Leu Leu Tyr Glu Glu Trp Asn Arg Lys
    130                 135
<210>169
<211>483
<212>PRT
<213>Chlamydia trachomatis
<400>169
Met His Leu Asp Gln Leu Leu Arg Asn Ile Pro Ala Lys Ile Tyr Gly
  1                 5                  10                  15
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```
Lys Val Glu Ser Ile Pro Val Arg Asn Leu Thr Arg Asp Ser Arg Cys
            20                  25                  30
Val Gly Val Gly Asp Ile Phe Ile Ala Arg Gln Gly Gln Phe Cys Asn
        35                  40                  45
Gly Asn Asp Tyr Ser Ser Gln Ala Val Ala Asn Gly Ala Ile Ala Val
    50                  55                  60
Leu Ser Ser Leu Tyr Asn Pro Phe Leu Ser Val Val Gln Ile Ile Ala
65                  70                  75                  80
Glu Asp Pro Ile Ala Leu Glu Ala Ser Leu Ala Ala Arg Phe Tyr Asn
                85                  90                  95
Asn Pro Ser Lys His Leu Asp Val Ile Gly Ile Thr Gly Thr Asn Gly
            100                 105                 110
Lys Thr Thr Val Ser Cys Leu Val Arg Glu Leu Met Glu Arg Ser Gly
        115                 120                 125
Ile Arg Thr Gly Leu Ile Gly Thr Ile Glu His Ile Leu Gly Glu Asn
    130                 135                 140
Arg Ile Val Asp Ser Phe Thr Thr Pro Asp Ala Ile Leu Leu Gln Lys
145                 150                 155                 160
Tyr Phe Ala Glu Met Val Lys Gln Asn Leu Ser Ala Ala Val Met Glu
                165                 170                 175
Val Ser Ser Ile Gly Met Ala Leu Gly Arg Val Arg Glu Thr Glu Phe
            180                 185                 190
Leu Ala Gly Val Leu Thr Asn Ile Thr Ser Asp His Leu Asp Phe His
        195                 200                 205
Gly Ser Leu Glu Glu Tyr Ile Ala Ala Lys Lys Gln Phe Phe Ala Ser
    210                 215                 220
Leu Pro Glu Lys Gly Ile Ala Val Val Asn Leu Asp Cys Glu Tyr Ala
225                 230                 235                 240
Pro Ser Phe Leu Asn Gly Ser Gln Ala Arg Ala Val Ser Tyr Ala Ile
                245                 250                 255
His Gln Glu Ala Asp Tyr Arg Ala Asp Arg Leu Lys Leu Tyr Ser Ser
            260                 265                 270
Gly Ser Ser Tyr Asp Ile Trp Tyr Gln Gly Lys Val Phe Pro Cys Glu
        275                 280                 285
Thr Ser Leu Ile Gly Glu His Asn Val Tyr Asn Val Leu Ala Ser Leu
    290                 295                 300
Ala Val Val His Gln Phe Leu Gly Gly Asp Phe Ala Asp Leu Val Arg
305                 310                 315                 320
Asp Val Arg Phe Leu Ser Ala Pro Lys Gly Arg Leu Asp Pro Ile Leu
                325                 330                 335
Leu Gly Pro Phe Pro Val Tyr Ile Asp Tyr Ala His Thr Pro Asp Ala
            340                 345                 350
Leu Asp Asn Val Cys Arg Ile Leu Leu Gln Leu Leu Pro Lys Tyr Gly
        355                 360                 365
Arg Leu Ile Ile Val Phe Gly Cys Gly Gly Asp Arg Asp Arg Val Lys
    370                 375                 380
Arg Pro Leu Met Ala Lys Val Ser Glu His Tyr Gly Phe Ser Phe Val
385                 390                 395                 400
Thr Ser Asp Asn Pro Arg Thr Glu Asp Pro Asp Gln Ile Ile Ala Asp
                405                 410                 415
Ile Cys Lys Gly Phe Ser Thr Asp His Tyr Val Val Glu Ser Asp Arg
            420                 425                 430
Lys Leu Ala Ile Glu Lys Ala Ile Ser Met Ala Ser Asp Lys Asp Ile
        435                 440                 445
Val Leu Val Ala Gly Lys Gly His Glu Gly Tyr Gln Ile Phe Lys His
    450                 455                 460
Gln Thr Ile Val Phe Asp Asp Arg Glu Val Val Cys Glu Ala Leu Ala
465                 470                 475                 480
Ala Leu Cys
```

<210>170

<211>190
<212>PRT
<213>Chlamydia trachomatis
<400>170
Leu Arg Glu Arg Asp Met Arg Gly Ile Arg Ser Ser Asn Ile Arg Arg
1 5 10 15
Leu Ser Leu Met Ile Glu Arg Leu Cys Val Lys Pro Trp Gln Pro Phe
20 25 30
Val Asn Leu Thr Leu Leu Leu Leu Leu Leu Thr Leu Ser Ser Pro Val
35 40 45
Ser Cys Phe Ala Asp Ala Ala Gly Ile Pro Lys Val Ser Arg Asn Glu
50 55 60
Leu Ile Val Ile Asp Pro Gly His Gly Gly Lys Asp Glu Gly Thr Ala
65 70 75 80
Asp Lys Glu Leu Arg Tyr Lys Glu Lys Thr Leu Ala Leu Ser Ile Ala
85 90 95
Leu Ser Val Gln Gly Cys Leu Arg Arg Met Gly Tyr Lys Thr Ile Met
100 105 110
Thr Arg Ala Thr Asp Val Tyr Val Asp Leu Ser Lys Arg Ala Ala Ile
115 120 125
Ala Asn Gln Asn Lys Ala Asp Val Phe Val Ser Ile His Cys Asn His
130 135 140
Ser Ser Asn Thr Ser Ala Leu Gly Thr Glu Ile Tyr Phe Tyr Asn Asp
145 150 155 160
Lys Asn Ile Leu Arg Thr Arg Lys Ser Glu Ser Leu Gly Lys Arg Ser
165 170 175
Trp Leu Leu Cys Lys Lys Met Glu Leu Tyr Ala Asn Val Lys
180 185 190

<210>171
<211>148
<212>PRT
<213>Chlamydia trachomatis
<400>171
Val Gln Leu Val Gly Arg Phe Cys Ala Phe Met Glu Lys Ile Lys Lys
1 5 10 15
Val Leu Asn Pro Lys Asp Glu Cys Ile Leu Tyr Ala Tyr Ile Ala Val
20 25 30
Phe Arg Asp Ala Arg Val Thr Thr Leu Thr Arg Arg Gln Gln Ala Thr
35 40 45
Met Ala Thr Met Thr Lys Lys Lys Leu Ile Ser Thr Ile Ser Gln Asp
50 55 60
His Lys Ile His Pro Asn His Val Arg Thr Val Ile Gln Asn Phe Leu
65 70 75 80
Asp Lys Met Thr Asp Ala Leu Val Gln Gly Asp Arg Leu Glu Phe Arg
85 90 95
Asp Phe Gly Val Leu Gln Val Val Glu Arg Lys Pro Lys Val Gly Arg
100 105 110
Asn Pro Lys Asn Ala Ala Val Pro Ile His Ile Pro Ala Arg Arg Ala
115 120 125
Val Lys Phe Thr Pro Gly Lys Arg Met Lys Arg Leu Ile Glu Thr Pro
130 135 140
Thr Lys Ser Ser
145

<210>172
<211>432
<212>PRT
<213>Chlamydia trachomatis
<400>172
Ser Ser Ser Leu Phe Pro Ala Leu Leu Ser Ile Val Glu Ser Gly Phe
1 5 10 15
Ser Val Ser Lys Leu Asp Ser Lys Phe Pro Gln Asp Tyr Phe Leu Pro

```
                20                  25                  30
Leu Asp Val Phe Leu Leu Thr Met Leu Val Glu Ser Gln Leu Gly Leu
            35                  40                  45
Glu Asp Val Leu Glu Ala Phe Ser Glu Arg Asn Phe Asp Ile Gln Ser
        50                  55                  60
Lys Ser Leu Ile Glu Ser Phe Gln Asp Lys Lys Leu Arg Arg Thr Val
65                  70                  75                  80
Ile Gln Arg Phe Leu His His Pro Leu Leu His Ile His Asp Ile Ala
                85                  90                  95
Arg Ala Ala Tyr Leu Leu Ala Ala Leu Glu Glu Gly Val Asp Leu Gly
            100                 105                 110
Tyr Gln Phe Leu Cys Met His Gln Thr Gln Ser Gly Ala Ala Leu Leu
        115                 120                 125
Phe Arg Arg Ala Gly Phe Leu Trp Gly Gly Leu Pro Tyr Pro Gly Glu
    130                 135                 140
His Ala Glu Met Ala Met Leu Leu Ser Arg Ile Ala Glu Phe Tyr Asp
145                 150                 155                 160
Thr Ser Tyr Glu Gln Val Gln Lys Met Ile Ala Phe Gln His Ala Leu
                165                 170                 175
Phe Ser His Glu Arg Asn Ile Phe Pro Ala Leu Trp Ser Gln Glu Gly
            180                 185                 190
Ser Arg Ser Asn Gln Glu Lys Thr Ala Val Ser Lys Leu Leu Phe Cys
        195                 200                 205
Gln Lys Glu Ala Arg Ile Glu Asp Gln Phe Thr Leu Thr Asp Met Ser
    210                 215                 220
Leu Gly Phe Trp Met Arg Arg Thr Pro Ser Phe Ser Ala Tyr Val Ser
225                 230                 235                 240
Gly Ser Gly Cys Lys Ser Gly Val Gly Ala Phe Leu Ile Gly Asp Val
                245                 250                 255
Gly Val Leu Asn Tyr Gly Pro Cys Val Gly Asp Pro Gly Glu Cys Leu
            260                 265                 270
Gly Phe Gly Leu Cys Gly Gln Val Lys Glu Phe Ser Cys Gln Glu Lys
        275                 280                 285
Asp Glu Glu Val Ser Ile Ser Phe Ala Gly Ala Leu Ser Gln Pro Ser
    290                 295                 300
Ser Arg Arg Thr Gly Phe Ser Tyr Leu Gln Asp Ala Leu Phe Ser Thr
305                 310                 315                 320
Asn Ser Cys Tyr Arg Ile Asp Ile Thr Glu Gln Lys Cys His Val Ala
                325                 330                 335
Ser Ser Leu Asp Arg Glu Asn Gln Asp Ala Phe Phe Ala Ile Phe Cys
            340                 345                 350
Lys Gly Ser Gln Cys Gln Val Cys Asn Gly Pro Lys Leu Arg Thr Gly
        355                 360                 365
Ser Pro Asp Ser Tyr Lys Gly Pro Ala Tyr Asp Val Leu Ile Lys Gly
    370                 375                 380
Glu Lys Glu Thr Val Arg Ile Leu Ser Ser Ser Pro His Met Glu Ile
385                 390                 395                 400
Phe Ser Leu Gln Gly Lys Asp Arg Phe Trp Gly Ser Asn Phe Leu Ile
                405                 410                 415
Asn Leu Pro Tyr Thr Gln Asn Ser Ile Asn Ile Leu Phe Glu Lys Ala
            420                 425                 430
```

<210>173
<211>231
<212>PRT
<213>Chlamydia trachomatis
<400>173

```
Ser Cys Ser Cys Arg Arg Phe Ala Lys Ile Gln Xaa Gln Arg Phe Met
  1               5                  10                  15
Leu Ile Gly Gln Glu Lys Gly Cys Asp Thr Lys Ser Arg Met His Arg
            20                  25                  30
Asn Phe Gly Met Leu Cys Pro Glu Gly Phe Arg Lys Ala Leu Arg Leu
```

```
          35                  40                  45
Ala Lys Met Ala Glu Lys Phe Gly Leu Pro Ile Ile Phe Leu Val Asp
      50                  55                  60
Thr Pro Gly Ala Phe Pro Gly Leu Thr Ala Glu Glu Arg Gly Gln Gly
 65                  70                  75                  80
Trp Ala Ile Ala Thr Asn Leu Phe Glu Leu Ala Arg Leu Ala Thr Pro
                 85                  90                  95
Ile Ile Val Ile Val Ile Gly Glu Gly Cys Ser Gly Gly Ala Leu Gly
            100                 105                 110
Met Ala Ile Gly Asp Val Val Ala Met Leu Glu His Ser Tyr Tyr Ser
        115                 120                 125
Val Ile Ser Pro Glu Gly Cys Ala Ser Ile Leu Trp Lys Asp Pro Lys
    130                 135                 140
Lys Asn Ser Asp Ala Ala Ala Met Leu Lys Met His Gly Glu Asp Leu
145                 150                 155                 160
Lys Gly Phe Ala Ile Val Asp Ala Val Ile Lys Glu Pro Ile Gly Gly
                165                 170                 175
Ala His His Asn Pro Ala Ala Thr Tyr Arg Ser Val Gln Glu Tyr Val
            180                 185                 190
Leu Gln Glu Trp Val Lys Leu Lys Asp Leu Pro Val Glu Glu Leu Leu
        195                 200                 205
Glu Lys Arg Tyr Gln Lys Phe Arg Thr Ile Gly Leu Tyr Glu Thr Ser
    210                 215                 220
Ser Glu Ser Asp Ser Glu Ala
225                 230
<210>174
<211>646
<212>PRT
<213>Chlamydia trachomatis
<400>174
Met Lys Leu Leu Leu Lys Ala Ile Leu Arg His Lys Lys His Leu Val
  1                 5                  10                  15
Leu Phe Gly Phe Ser Leu Leu Ser Ile Leu Gly Leu Thr Ile Thr Ser
            20                  25                  30
Gln Ala Glu Ile Phe Ser Leu Gly Leu Ile Ala Lys Thr Gly Pro Asp
        35                  40                  45
Thr Phe Leu Leu Phe Gly Lys Gln Glu Gly Ala Ser Leu Val Lys Arg
    50                  55                  60
Lys Glu Leu Ser Lys Asp Gln Leu Leu Glu Gln Trp Asp Asn Ile Val
 65                  70                  75                  80
Gly Glu Gly Asp Thr Leu Ser Leu Pro Gln Ala Asn Ala Tyr Ile Ala
                85                  90                  95
Lys His Ser Gly Gly Ser Gln Ser Ile Thr Lys Arg Leu Ser Ala Tyr
            100                 105                 110
Leu Ser Gly Cys Phe Asp Phe Ser Arg Leu Gln Cys Leu Ala Leu Phe
        115                 120                 125
Leu Val Val Val Ala Ile Leu Lys Ser Thr Thr Leu Phe Phe Gln Arg
    130                 135                 140
Phe Leu Ala Gln Leu Ile Ala Ile Arg Val Ser Cys Ser Leu Arg Lys
145                 150                 155                 160
Asp Tyr Phe Leu Ala Leu Gln Thr Leu Pro Met Thr Phe Phe His Ala
                165                 170                 175
His Asp Met Gly Asn Leu Ser Ser Arg Val Ile Ala Asp Ser Ser Met
            180                 185                 190
Ile Ala Leu Ala Ile Asn Ala Leu Met Val Asn Tyr Ile Gln Ala Pro
        195                 200                 205
Ile Thr Met Thr Leu Ala Leu Val Val Cys Leu Ser Ile Ser Trp Lys
    210                 215                 220
Phe Cys Ala Cys Val Cys Leu Ala Phe Pro Ile Phe Ile Leu Pro Ile
225                 230                 235                 240
Val Ile Ile Ala Lys Lys Val Lys Ala Leu Ala Lys Arg Ile Gln Lys
```

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                245                 250                 255
Ser Gln Asp His Ser Ala Ala Ala Leu Leu Asp Phe Leu Leu Gly Ile
            260                 265                 270
Leu Thr Val Lys Val Phe Arg Thr Glu Gln Phe Ser Phe Ser Lys Tyr
        275                 280                 285
Cys Gln Lys Asn Asp Glu Ile Ala Arg Leu Glu Glu Arg Ser Ala Val
    290                 295                 300
Tyr Ser Leu Ile Pro Arg Pro Leu Leu His Thr Ile Ala Ser Leu Phe
305                 310                 315                 320
Phe Ala Leu Val Ile Met Ile Gly Leu Tyr His Phe His Ile Pro Pro
                325                 330                 335
Glu Glu Leu Val Val Phe Cys Gly Leu Leu Tyr Leu Ile Tyr Asp Pro
            340                 345                 350
Ile Lys Lys Phe Ala Asp Glu Asn Ala Asn Ile Met Arg Gly Cys Ala
        355                 360                 365
Ala Ala Glu Arg Phe Tyr Glu Val Leu Asp Leu Ala Lys Gln Gln Ser
    370                 375                 380
Asn Val Ser Glu Lys Leu Asn Glu Phe Gln Gly Leu Gln His Ser Ile
385                 390                 395                 400
Gln Phe Cys Asn Val Ser Phe Gly Tyr Val Glu Asp Ser Pro Val Leu
                405                 410                 415
Ser Asp Phe Asn Leu Val Leu Lys Lys Gly Glu Ala Ile Gly Ile Val
            420                 425                 430
Gly Pro Thr Gly Ser Gly Lys Ser Thr Ile Ala Lys Leu Leu Pro Arg
        435                 440                 445
Leu Tyr Glu Val Ser His Gly Glu Leu Leu Ile Asp Ser Leu Pro Ile
    450                 455                 460
Gln Ser Tyr Cys Lys Asn Ser Leu Arg Lys His Ile Gly Cys Val Leu
465                 470                 475                 480
Gln His Pro Phe Leu Phe Tyr Asp Thr Val Trp Asn Asn Leu Thr Cys
                485                 490                 495
Gly Arg Thr Phe Leu Glu Glu Glu Val Phe His Ala Leu Lys Gln Ala
            500                 505                 510
His Ala Tyr Glu Phe Val Ser Lys Met Pro Gln Gly Val His Ser Leu
        515                 520                 525
Leu Glu Glu Ser Gly Lys Asn Leu Ser Gly Gly Gln Gln Gln Arg Leu
    530                 535                 540
Thr Ile Ala Arg Ala Leu Leu His Asn Thr Ser Ile Leu Leu Leu Asp
545                 550                 555                 560
Glu Ala Thr Ser Ala Leu Asp Ala Ile Ser Glu Asn Tyr Val Lys Glu
                565                 570                 575
Ile Val Gly Gln Leu Lys Gly Arg Cys Thr Gln Ile Ile Ile Ala His
            580                 585                 590
Lys Leu Ser Thr Leu Glu Tyr Val Asp Arg Ile Val Tyr Leu Glu Gln
        595                 600                 605
Gly Lys Lys Ile Ala Glu Gly Thr Lys Glu Glu Leu Leu Asp Ser Cys
    610                 615                 620
Pro Ala Phe Gln Arg Met Trp Val Leu Ser Gly Ala Lys Asp Trp Glu
625                 630                 635                 640
Leu Asn Ala Val Val Lys
                645
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<210>175
<211>219
<212>PRT
<213>Chlamydia trachomatis
<400>175

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Gln Lys Lys Pro Leu Thr Ser Leu Leu Ser Asp Gly Lys Leu Phe Leu
  1               5                  10                  15
His Tyr Gly Arg Leu Val Val Met Phe Lys Leu Leu Leu Ile Phe Ala
             20                  25                  30
Asp Pro Ala Glu Ala Ala Arg Thr Leu Ser Leu Phe Pro Phe Ser Leu
```

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          35                  40                  45
Asn Lys Glu Asn Phe Tyr Thr Tyr His Thr Glu Asn Val Leu Leu Asp
      50                  55                  60
Val Met Val Leu Lys Thr Trp Gly Tyr Arg Gly Val Val Gln Ala Leu
 65                  70                  75                  80
Ser Pro Pro Pro Ser Gly Tyr Asp Leu Trp Ile Asn Ala Gly Phe Ala
                 85                  90                  95
Gly Ala Ala Asn Pro Asn Ile Pro Leu Leu Lys Thr Tyr Thr Ile Thr
            100                 105                 110
Ser Val Lys Glu Leu Thr Pro Thr Thr Ser Val Glu Glu Glu Leu Glu
        115                 120                 125
Val Thr Pro Ile Pro Arg Leu Pro Leu Ala Gln Leu Thr Ser Val Arg
    130                 135                 140
Ser Pro Tyr Arg Asp Gly Phe His Glu His Leu Gln Leu Val Asp Met
145                 150                 155                 160
Glu Gly Phe Phe Ile Ala Lys Gln Ala Ser Leu Val Ala Cys Pro Cys
                165                 170                 175
Ser Met Ile Lys Val Ser Ser Asp Tyr Thr Thr Arg Glu Gly Gln Asp
            180                 185                 190
Phe Leu Lys Asn Asn Lys Val Lys Leu Ser Gln Lys Leu Ala Glu Ala
        195                 200                 205
Ile Phe Pro Ile Tyr Ser Ser Phe Ile Asp Val
    210                 215
<210>176
<211>256
<212>PRT
<213>Chlamydia trachomatis
<400>176
Met Thr Phe Ser Ala Ala Phe Ser Pro Cys Pro Asn Asp Ile Phe Leu
  1                 5                  10                  15
Phe Arg Ser Phe Leu Glu Lys His Lys Gly Phe Pro Ser Leu Arg Gln
             20                  25                  30
Ile Met Ile Ala Asp Ile Ser Ser Leu Asn Tyr Tyr Ala Leu Glu Thr
         35                  40                  45
Arg Phe Pro Leu Ile Lys Ile Ser Ala Ser Leu Tyr Pro Gln Ile Ala
     50                  55                  60
Asp Ser Tyr Asp Val Leu Asn Val Gly Thr Thr Leu Gly Tyr Lys Ile
 65                  70                  75                  80
Gly Pro Leu Ile Leu Ser Lys Gln Leu Asp Ser Pro Leu Lys Ser Leu
                 85                  90                  95
Ala Thr Pro Gly Glu Thr Thr Thr Ala His Ala Leu Cys Arg Leu Phe
            100                 105                 110
Tyr Pro Arg Ala Glu Leu Val Pro Met Lys Tyr His Glu Ile Ile Pro
        115                 120                 125
Ala Ile Leu Ser Asn Arg Val Asp Gly Gly Ala Val Ile His Glu Glu
    130                 135                 140
Arg Phe Ser Phe Pro Lys Asp Leu Cys Ile Val Glu Asp Leu Gly Gln
145                 150                 155                 160
Leu Trp Glu Lys Thr Trp His Leu Pro Leu Pro Leu Gly Cys Ile Val
                165                 170                 175
Ile Ser Lys Lys Val Ser Asp Asp Asp Ser Tyr Leu Leu Ser His Ala
            180                 185                 190
Leu Gln Glu Ser Leu Lys Lys Ser Leu Thr Asp Ser Ala Leu Ala Ile
        195                 200                 205
Gln Lys Ala Ser Glu Tyr Ser Arg Asp Lys Asn Pro Thr Thr Ile Gln
    210                 215                 220
His Phe Ile Asp Thr Tyr Val Thr Glu Glu Thr Phe Asn Leu Ser Ser
225                 230                 235                 240
Ile Gly Arg Gln Ala Phe Ser Thr Leu Trp Thr Ala Cys Arg Asn Val
                245                 250                 255
<210>177
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09/894,147 - 09/26/2001

<211>399
<212>PRT
<213>Chlamydia trachomatis
<400>177
Met Thr Thr Trp Thr Leu Asn His Asn Asn Leu Thr Lys Phe Leu Thr
1 5 10 15
His Ala Gln Leu Glu Pro Ser Leu Glu Arg Glu Ser Gly Leu Ile Tyr
20 25 30
Ile Thr Val Pro Ala Gly Glu His Glu Leu Pro Leu Phe Phe Val Ile
35 40 45
Arg Asn Glu Gly Glu Val Leu Gln Leu Val Cys Tyr Phe Pro Tyr Gln
50 55 60
Ile Gln Gln Asn Gln Arg Asp Thr Thr Ala Arg Leu Leu His Leu Val
65 70 75 80
Asn Arg Asp Ile Asp Ile Pro Gly Phe Gly Met Asp Glu Glu Gln Asn
85 90 95
Ile Ile Phe Tyr Arg Leu Val Ile Pro Cys Leu Lys Gly Glu Ile Asn
100 105 110
Glu Asp Leu Leu Arg Val Tyr Ile Asp Thr Ile Lys Leu Ile Cys Asp
115 120 125
Ser Phe Phe His Ala Ile Gly Leu Ile Ser Thr Gly Asn Met Asp Leu
130 135 140
Asp Glu Leu Lys Lys Gln Ala Lys Leu Glu Asn Asn Gln Ser Asp Gln
145 150 155 160
Leu Glu Pro Leu Glu Glu Leu Val Pro Ala Leu Ile Phe Tyr Asp Thr
165 170 175
Glu Thr Thr Gly Thr Gln Ile Asp Lys Asp Arg Ile Val Glu Leu Ala
180 185 190
Ala Tyr Asn Gly Thr Thr Ser Glu Ser Phe Gln Thr Leu Val Asn Pro
195 200 205
Glu Ile Pro Ile Pro Ala Glu Ala Thr Lys Ile His Gly Ile Thr Thr
210 215 220
Ala Glu Val Ala Asp Ala Pro Arg Phe Pro Glu Ala Tyr Gln Lys Phe
225 230 235 240
Ile Glu Phe Cys Gly Thr Asp Asn Ile Leu Val Ala His Asn Asn Asn
245 250 255
Ala Phe Asp Tyr Pro Leu Leu Val Arg Glu Cys Arg Arg His Gly Leu
260 265 270
Ser Glu Pro Gln Leu Arg Thr Ile Asp Ser Leu Lys Trp Ala Lys Lys
275 280 285
Tyr Arg Thr Asp Leu Pro Gln His Ser Leu Gln Tyr Leu Arg Gln Val
290 295 300
Tyr Gly Phe Glu Glu Asn Gln Ala His Arg Ala Leu Asp Asp Val Ile
305 310 315 320
Thr Leu Tyr Arg Val Phe Ser Ala Leu Val Gly Asp Leu Ser Pro Asp
325 330 335
Gln Ile Tyr Asp Leu Leu Asn Glu Thr Cys His Pro Arg Ile Phe Lys
340 345 350
Met Pro Phe Gly Lys Tyr Lys Gly Lys Pro Leu Ser Glu Val Pro Ser
355 360 365
Ser Tyr Ile Ala Trp Leu Gln Lys Gly Asp Tyr Leu Leu Gln Pro Glu
370 375 380
Asn Lys Glu Ile Lys Ala Ala Ile Glu Ala Tyr Gln Gln Leu Lys
385 390 395
<210>178
<211>254
<212>PRT
<213>Chlamydia trachomatis
<400>178
Leu Gly Gly Glu Gly Val Met Ile Val Ala Asp Phe Glu Tyr Phe Gly
1 5 10 15

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Leu Ser Asp Val Gly Leu Val Arg His Asn Asn Glu Asp Phe Trp Gln
                20                  25                  30
Val Asn Tyr Asp Ser Gln Leu Ile Ala Ile Ala Asp Gly Met Gly Gly
            35                  40                  45
His Arg Ala Gly Ala Val Ala Ser Tyr Glu Ala Val Gly Asn Leu Met
        50                  55                  60
Gln Leu Val Asp Leu His Lys Val Asp Leu Glu Arg Phe Gly Asp Glu
65                  70                  75                  80
Gln Tyr Lys Glu Ser Ile Lys Thr Ile Val Ser Glu Val Asn Leu Leu
                85                  90                  95
Ile Tyr Arg Gln Gly Leu Ser Asn Glu Glu Phe Lys Gly Met Gly Thr
            100                 105                 110
Thr Leu Ser Cys Met Gln Phe Arg Arg Gly Lys Ala Trp Leu Phe His
        115                 120                 125
Val Gly Asp Cys Arg Val Tyr Arg Leu Arg Asn Lys Met Leu Glu Arg
    130                 135                 140
Leu Thr Glu Asp His Ser Leu Ala Asn His Leu Ala Ser Arg Tyr Gly
145                 150                 155                 160
Leu Ser Lys Gln Ser Val Lys Arg Tyr Pro Gly Arg Asn Val Leu Thr
                165                 170                 175
Asn Val Leu Gly Ser Arg Pro His Val Ser Leu Asp Ile Arg Glu Met
            180                 185                 190
Ser Tyr Glu Lys Glu Asp Leu Phe Val Phe Cys Ser Asp Gly Leu Thr
        195                 200                 205
Ser Ala Val Ser Asp His Asp Met Leu Asp Ile Leu Thr Gln Thr Thr
    210                 215                 220
Thr Leu Glu Glu Gly Gly Asn Ile Leu Ile Ser Leu Ala Asn Ser Arg
225                 230                 235                 240
Gly Gly Arg Asp Asn Ala Thr Val Ile Leu Val Arg Met Arg
                245                 250
<210>179
<211>374
<212>PRT
<213>Chlamydia trachomatis
<400>179
Met Thr Ile Tyr Leu Asp Thr Asn Ala Ser Ala Leu Leu Glu Pro Gly
  1                 5                  10                  15
Val Leu Met Cys Leu His Ser Leu Phe Ile Gly Glu Gly Gly Phe Gly
            20                  25                  30
Asn Pro Ser Ser Val His Ser Phe Gly Lys Lys Thr Lys Lys Leu Val
        35                  40                  45
Lys Glu Thr Ser Thr Leu Ile Glu Lys Ala Leu Gly Phe Ser His Cys
    50                  55                  60
Arg Val Ile Tyr Thr Ser Gly Ala Thr Glu Ser Leu Asn Leu Ala Ile
65                  70                  75                  80
Gln Asn Ile Pro Thr Gly Ser His Val Ile Thr Ser Ser Met Glu His
                85                  90                  95
Pro Ala Val Ile Glu Pro Leu Lys Gln Ala Lys Leu Ser Val Thr Tyr
            100                 105                 110
Leu Asp Pro Ile Pro Gly Glu Cys Val Val Ser Leu Glu Gln Ile Lys
        115                 120                 125
Glu Ala Val Gln Ser Asp Thr Ser Ala Ile Val Leu Gly Trp Val Asn
    130                 135                 140
Ser Glu Val Gly Val Arg Ile Asp Leu Glu Ala Ile Ala Glu Phe Ala
145                 150                 155                 160
Lys Glu Arg Gln Leu Leu Leu Ile Val Asp Ala Thr Ala Ile Val Gly
                165                 170                 175
Lys Glu Val Ile His Ile Pro Glu Gly Val Ser Met Val Ala Phe Ser
            180                 185                 190
Gly His Lys Phe His Ala Leu Ser Gly Ile Gly Val Leu Leu Thr Ser
        195                 200                 205
```

09/15/2004 14:50:09

Pro Lys Ile Lys Ile Ser Pro Ile Ile Ser Gly Gly Gly Gln Gln Gly
210 215 220
Gly Ile Arg Ser Gly Thr Glu His Ile His Gly Ile Ala Ser Leu Arg
225 230 235 240
Tyr Ile Phe Ser Lys Leu Leu Val Glu Gln Pro Ala Ile Ala Gln Thr
245 250 255
Met Arg Ser Tyr Arg Asp Leu Phe Glu Ser Arg Ile Gln Glu Ala Phe
260 265 270
Pro Glu Cys Ile Val His Cys Gln Asp Lys Pro Arg Val Ser Asn Leu
275 280 285
Ser Ala Ile Ala Phe Pro Gly Leu Glu Gly Glu Val Met Gln Ile Ala
290 295 300
Leu Asp Leu Glu Gly Val Ala Cys Gly Tyr Gly Ser Ala Cys Ser Ser
305 310 315 320
Gly Ala Thr Thr Val Phe Lys Ser Leu Thr Val Met Lys Val Pro Gln
325 330 335
Asp Leu Ala Val Ala Thr Leu Arg Phe Ser Phe Ser Tyr Leu Leu Ser
340 345 350
Glu Glu Glu Ile Leu Thr Ala Ala Gln Arg Val Ile Arg Val Val Lys
355 360 365
His Leu Gln Gln Tyr Ala
370

<210>180
<211>404
<212>PRT
<213>Chlamydia trachomatis
<400>180
Met Glu Thr Asn Ser Pro Phe Phe Trp Leu Gly Val Asn Leu Leu Cys
1 5 10 15
Ile Phe Val Gln Gly Phe Phe Ser Met Met Glu Met Ala Cys Val Ser
20 25 30
Phe Asn Arg Val Arg Leu Gln Tyr Tyr Leu Thr Lys Ser Asn Lys Lys
35 40 45
Ala Ser Tyr Ile Asn Phe Leu Ile Arg Arg Pro Tyr Arg Leu Phe Gly
50 55 60
Thr Val Met Leu Gly Val Asn Ile Ala Leu Gln Ile Gly Ser Glu Ser
65 70 75 80
Ser Arg Thr Cys Tyr Lys Leu Leu Gly Ile Ser Pro Glu Tyr Ala Pro
85 90 95
Ala Thr Gln Ile Ile Leu Val Val Ile Phe Ala Glu Leu Ile Pro Leu
100 105 110
Ala Ile Ser Arg Lys Ile Pro Glu Lys Ile Ala Leu Lys Gly Ala Pro
115 120 125
Ile Leu Tyr Phe Ala His Tyr Leu Phe Tyr Pro Leu Ile Gln Cys Val
130 135 140
Gly Gly Ile Thr Asn Met Ile Tyr Phe Ile Leu Asn Ile Lys Glu Glu
145 150 155 160
Thr Ile His Ser Thr Leu Ser Arg Asp Glu Leu Gln Lys Thr Leu Glu
165 170 175
Thr His His Glu Glu His Asp Phe Asn Val Ile Ala Thr Asn Ile Phe
180 185 190
Ser Leu Ser Ala Thr Ser Val Glu Gln Val Cys Gln Tyr Leu Asp Gln
195 200 205
Ile Pro Ile Leu Ser Ala Thr Ala Ser Val Arg Asp Val Cys Gln Leu
210 215 220
Val Arg Arg His Arg Leu Asp Phe Val Pro Val Tyr His Lys Val Lys
225 230 235 240
Lys Asn Val Val Gly Ile Ala Phe Pro Lys Asn Leu Ile Asn Arg Asn
245 250 255
Pro Ser Asp Pro Val Val Pro Tyr Leu Ser Ser Pro Trp Phe Ile Thr
260 265 270

```
Ala Lys Ser Lys Leu Ile His Ala Ile Gln Glu Phe Arg Lys Asn Ser
        275                 280                 285
Ser Lys Ile Ala Ile Val Leu Asn Asn Asn Gly Glu Pro Met Gly Val
    290                 295                 300
Leu Gly Leu His Thr Val Phe Lys Thr Leu Phe Asn Thr Arg Asn Ile
305                 310                 315                 320
Thr Gln Leu Lys Pro Lys Pro Thr Ser Leu Ile Glu Arg Thr Phe Ser
                325                 330                 335
Gly Asn Thr Pro Leu Ser Glu Ile Glu Asn Glu Leu Asp Ile Ile Phe
            340                 345                 350
Met Asp Asn Asp Cys Thr Thr Ile Glu Gln Leu Met Leu Lys Leu Leu
        355                 360                 365
Asp Thr Pro Pro Glu Val Gly Ala Ser Ile Ile Ile Asn Asp Leu Leu
    370                 375                 380
Leu Glu Val Lys Glu Ile Ser Leu Tyr Gly Ile Lys Thr Val Ala Ile
385                 390                 395                 400
Lys Asp Thr Leu

<210>181
<211>283
<212>PRT
<213>Chlamydia trachomatis
<400>181
Lys Phe Arg Pro Ile Phe Asp Trp Ala Ile Ser Gly Ile Asn Phe Ile
  1               5                  10                  15
Val Gln Lys Met Leu Ala Arg Gln Glu Ser Asp Phe Ile Gln Pro Gln
            20                  25                  30
Glu Leu Lys Glu Val Leu Arg Ser Cys Lys Asp Phe Gly Val Val Asn
        35                  40                  45
His Glu Glu Ser Arg Leu Leu Phe Gly Tyr Leu Ser Met Glu Glu Gly
    50                  55                  60
Ser Ile Lys Glu Arg Met Thr Pro Lys Gln Glu Ile Ile Phe Tyr Asp
65                  70                  75                  80
Val Leu Thr Pro Ile Glu Asn Leu Tyr Lys Leu Phe Ser Gly Pro Lys
                85                  90                  95
Gln Ser Tyr Ser Lys Val Leu Val Cys Lys Gly Gly Leu Gln Asn Leu
            100                 105                 110
Leu Gly Val Cys Ser Ala Lys Leu Leu Leu Leu Tyr Lys Glu Lys Leu
        115                 120                 125
Gln Ser Ala Glu Glu Leu Leu Pro Leu Leu Arg Lys Pro His Tyr Ile
    130                 135                 140
Pro Glu Thr Val Ser Ala Lys Thr Ala Leu Tyr His Leu Ala Gly Glu
145                 150                 155                 160
Asp Cys Gly Leu Gly Ile Ile Ile Asp Glu Tyr Gly Ser Ile Glu Gly
                165                 170                 175
Leu Ile Thr Gln Asn Asp Leu Phe Lys Ile Val Ser Asp Glu Val Ala
            180                 185                 190
His Asn Arg Pro Ser Phe Lys Gln Phe Ala His Ser Asp Lys Asn Val
        195                 200                 205
Val Ile Ala Ala Gly Thr Tyr Glu Leu Ser Asp Phe Tyr Asp Leu Phe
    210                 215                 220
Gly Val Asp Leu Pro Thr Thr Ala Asn Cys Val Thr Ile Gly Gly Trp
225                 230                 235                 240
Leu Thr Glu Gln Leu Gly Glu Ile Pro Glu Thr Gly Thr Lys Phe Ala
                245                 250                 255
Trp Gly Gln Phe Val Phe Gln Ile Leu Asp Ala Ala Pro Asn Cys Val
            260                 265                 270
Lys Arg Val Tyr Ile Arg Lys Thr His Gly Asn
        275                 280
<210>182
<211>174
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<212>PRT
<213>Chlamydia trachomatis
<400>182
Ser Gly Ser Ala His Asn Asn Pro Asn Arg Met Phe Ser Ser Ala Ile
1 5 10 15
Val Ile Leu Thr Ala Ile Phe Val Leu Cys Ser Gly Phe Val Ser Leu
20 25 30
Ser His Ile Ala Leu Phe Ser Leu Pro Ser Ser Leu Ile Ala His Tyr
35 40 45
Ser His Ser Lys Asn Arg Gln Leu Arg Gln Ile Ala Asn Leu Met Ala
50 55 60
Tyr Pro Asn His Leu Leu Ile Thr Leu Val Phe Phe Asp Ile Gly Ile
65 70 75 80
Asn Ile Gly Val Gln Asn Cys Ile Ala Thr Leu Val Gly Asp Ser Ala
85 90 95
Ser Leu Leu Leu Thr Val Gly Val Pro Leu Ala Leu Thr Leu Val Leu
100 105 110
Gly Glu Ile Val Pro Lys Val Ile Ala Ile Pro Tyr Asn Ala Arg Ile
115 120 125
Ala Lys Ile Val Thr Pro Ile Ile Phe Ala Ser Thr Lys Ser Ser Ala
130 135 140
Leu Tyr Leu Ile Gly Leu Ser Arg Val Ser Ile Leu Ser Phe Arg Lys
145 150 155 160
Cys Trp Pro Val Lys Lys Val Ile Leu Phe Asn Pro Lys Asn
165 170

<210>183
<211>128
<212>PRT
<213>Chlamydia trachomatis
<400>183
Ile Met Glu Glu Lys Gly Ile Leu Gln Leu Val Glu Ile Ser Arg Ala
1 5 10 15
Met Ala Leu Gln Gly Val Cys Pro Trp Thr Asn Leu Gln Ser Val Glu
20 25 30
Ser Met Leu Gln Tyr Ile Ala Gly Glu Cys Gln Glu Leu Ala Asp Ala
35 40 45
Val Gln Glu Asn Lys Ala Ser Leu Glu Ile Ala Ser Glu Ala Gly Asp
50 55 60
Val Leu Thr Leu Val Leu Thr Leu Cys Phe Leu Leu Glu Arg Glu Gly
65 70 75 80
Lys Leu Lys Ala Glu Glu Val Phe Val Glu Ala Leu Ala Lys Leu Arg
85 90 95
Arg Arg Ser Pro His Val Phe Asp Pro His Asn Gln Ile Ser Leu Glu
100 105 110
Gln Ala Glu Glu Tyr Trp Ala Arg Ile Lys Gln Gln Glu Lys Ile Ser
115 120 125

<210>184
<211>228
<212>PRT
<213>Chlamydia trachomatis
<400>184
Gly His Lys Ile Glu Ser Ile Phe Ser Leu Ser Cys Val Met Arg Lys
1 5 10 15
Phe Trp Leu Leu Ala Ser Phe Gly Leu Leu Ser Leu Thr Thr Thr Thr
20 25 30
Leu Ser Ser Cys Ala Val Ser Asn Ser Gly Ser Tyr Asn Ala Arg Leu
35 40 45
Tyr Thr Lys Gly Ser Lys Ala Lys Gly Val Val Ala Met Leu Pro Val
50 55 60
Phe Tyr Arg Thr Glu Lys Ser Ala Glu Leu Leu Pro Trp Asn Leu Gln
65 70 75 80

Ala Glu Phe Ser Glu Glu Ile Ser Arg Arg Leu His Ser Ser Asp Lys
85 90 95
Leu Leu Leu Ile Xaa Xaa His Ala Ser Ala Gly Val Ala Ala Gln Phe
100 105 110
Phe Ser Pro Thr Pro Asn Ile Ser Pro Glu Leu Ala Thr Gln Leu Leu
115 120 125
Pro Ala Glu Phe Val Val Ala Ala Glu Ile Leu Glu Gln Lys Thr Thr
130 135 140
Glu Asp Val Leu Asn Pro Ser Ile Ser Ala Ser Val Arg Val Arg Val
145 150 155 160
Phe Asp Ile Arg His Asn Lys Val Ser Met Ile Tyr Gln Glu Ile Leu
165 170 175
Asp Ala Ser Gln Ser Leu Ala Ser Gly Ser Asn Asp Tyr His Arg Tyr
180 185 190
Gly Trp Arg Ser Lys Asn Phe Asp Ser Thr Pro Met Gly Leu Met His
195 200 205
Gln Arg Leu Phe Arg Glu Ile Val Ala Arg Val Glu Gly Tyr Val Cys
210 215 220
Ala Asn Tyr Ser
225
<210>185
<211>220
<212>PRT
<213>Chlamydia trachomatis
<400>185
Val Ile His Trp Asp Gln Ser Arg Thr Leu Leu Ser Phe Pro Arg Val
1 5 10 15
Gly Leu His Leu Ser Trp Tyr Gly Ile Leu Phe Ser Leu Gly Ile Phe
20 25 30
Leu Ser Ser Phe Ser Gly Ile Lys Leu Ala Thr Ala Leu Cys Lys Asp
35 40 45
Arg Glu Glu Lys Lys Glu Leu Arg Thr Ser Leu Glu Asn Phe Ala Leu
50 55 60
Gly Ala Leu Leu Ala Ile Ile Ile Gly Ala Arg Leu Ala Tyr Val Leu
65 70 75 80
Phe Tyr Gly Gly Ser Phe Tyr Phe Glu Asn Pro Ser Glu Ile Ile Lys
85 90 95
Ile Trp Lys Gly Gly Leu Ser Ser His Gly Ala Val Ile Ser Val Val
100 105 110
Ile Trp Ala Ala Val Phe Ser Arg Leu His Ile Arg Lys Leu Pro Met
115 120 125
Leu Ser Val Thr Tyr Ile Cys Asp Leu Cys Gly Ala Val Phe Gly Cys
130 135 140
Ala Ala Leu Leu Ile Arg Val Gly Asn Phe Met Asn Gln Glu Ile Leu
145 150 155 160
Gly Thr Pro Thr Ser Met Pro Trp Gly Val Ile Phe Ser Asn Gly Gly
165 170 175
Gly Gln Ile Pro Arg His Pro Val Gln Leu Tyr Glu Gly Leu Gly Tyr
180 185 190
Leu Val Leu Ser Cys Ile Leu Cys Arg Leu Trp Leu Ser Trp Cys Tyr
195 200 205
Ile Val Trp Val Leu Ala Ile Val Gln Gln Ala Leu
210 215 220
<210>186
<211>92
<212>PRT
<213>Chlamydia trachomatis
<400>186
Thr Ser Cys Ser Ala Leu Arg Arg Pro Trp Leu Phe Ser Ala Phe Leu
1 5 10 15
Tyr Ser Val Gln Ala Leu Ala Ile Val Val Leu Tyr Arg Leu Gly Ser

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                20                  25                  30
Gly Tyr Ser Ala Ala Gly Ala Leu Ile Gly Val Ala Val Ile Arg Phe
            35                  40                  45
Cys Ala Glu Phe Phe Lys Thr His Gln Gly Ala Trp Leu Gly Glu Glu
        50                  55                  60
Asn Ile Leu Thr Ile Gly Gln Trp Leu Ser Ile Pro Met Val Phe Leu
65                  70                  75                  80
Gly Val Gly Ile Ile Trp Ile Ala Ser Lys Lys Lys
                85                  90
```

<210>187
<211>334
<212>PRT
<213>Chlamydia trachomatis
<400>187

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Glu Arg Gly Phe Pro Pro His Arg Glu Asn Pro Pro Arg Met Arg Met
  1               5                  10                  15
Asn Lys Arg Thr Leu Leu Phe Val Ser Leu Val Ser Ala Ala Phe Leu
            20                  25                  30
Gly Cys Gln Ile Phe Phe Gly Tyr Arg Asp Leu Lys Ser Cys Gln Asp
        35                  40                  45
Leu Ala Glu Lys Gln Arg Ala Ile Ser Glu Gln Ile Leu Ala Ser Thr
    50                  55                  60
Glu Gln Leu Ser Val Val Pro Trp Thr Ala Ser Leu Glu Glu Ser Glu
65                  70                  75                  80
Ser Val Asn Gln Tyr Ala Ile Arg Leu Gly Asn Arg Leu Leu Leu Leu
                85                  90                  95
Thr Lys Gly Gly Ser His Pro Glu Val Tyr Ser Arg Gly Thr Ser Trp
            100                 105                 110
Ser Leu Ile Glu Gln Thr Ser Thr Phe Gly Gly Ile Leu Val Ser Leu
        115                 120                 125
Tyr Gly Glu Thr Gly Gln Glu Val Leu Ser Lys Gly Ser Ser Val Tyr
    130                 135                 140
Leu Pro Asn Gln Arg Asp Ala Phe Pro Val Leu Val Ala Glu Phe Arg
145                 150                 155                 160
Ser Asn Gln Glu Pro Leu Val Phe Leu Gly Glu Tyr Lys Asp Gly Lys
                165                 170                 175
Ile Ala Asn Lys Ala Gly Ala Ile Tyr Gly Thr Ser Leu Val Phe Leu
            180                 185                 190
Asn Thr Gly Asn Glu Phe Val Pro Leu Gly Ile Tyr Asn Ser Lys Glu
        195                 200                 205
Glu Cys Val Glu Ser Leu Asp Leu Pro Met Ala Arg Ala Val Val Phe
    210                 215                 220
Ala Asp Lys Glu Asn Pro Thr Ala Ser Gly Ser Tyr Tyr Met Leu Ser
225                 230                 235                 240
Asn Glu Tyr Met Gln Ile Val Val Ser Gln Glu Ser Gly Ala Ile Glu
                245                 250                 255
Gly Ile Asn Leu Pro Phe Ala Ser Asp Gln Glu Glu Asn Lys Ser Ile
            260                 265                 270
Val Asn Glu Ile Gly Phe Asp Arg Glu Leu Ala Ile Asn Ser Pro Ser
        275                 280                 285
Glu Ala Ser Phe Pro Gly Val Glu Thr Ile Asp Ser Gln Arg Gln Asn
    290                 295                 300
Ile Ala Asn Val Val Gly Gly Tyr Tyr Pro Leu Leu Arg Arg Gly Thr
305                 310                 315                 320
Leu Ser Asp Val Lys Lys Arg Val Pro Ala Gln Tyr Gln Ala
                325                 330
```

<210>188
<211>225
<212>PRT
<213>Chlamydia trachomatis
<400>188

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Asn Ile Val Ser Gly Arg Glu Leu Ala Ser Pro Val Ala Thr Gly Phe
 1               5                  10                  15
Arg Val Val Ser Phe Asp Asn Lys Thr Leu Ile Leu Glu Ser Gly Asp
            20                  25                  30
Gly Gly Ile Arg Lys Thr Tyr Ser Leu Gly Glu Gln Pro Tyr Ala Phe
        35                  40                  45
Glu Leu Glu Ile Gln Thr Thr Gln Gly Arg Glu Asp Leu Trp Ile Thr
    50                  55                  60
Ser Gly Val Pro Glu Val Glu Ile Met Ser Asn Ala Phe Val Pro Ala
65                  70                  75                  80
Val Lys Tyr His Ala Val Lys Lys Asn Lys Ser Asp Leu Phe Asn Val
                85                  90                  95
Lys Leu Pro Lys Ala Lys Asp Ser Leu Leu Val Arg Asn Asn Ala Thr
            100                 105                 110
Pro Gln Trp Ile Leu Asn Ser Asn Gly Tyr Phe Gly Val Ile Leu Thr
        115                 120                 125
Pro Arg Thr Pro Ile Pro Ala Gly Tyr Ala Ser Ser Phe Ile Pro Gly
    130                 135                 140
Asn Val Val Pro Thr Arg Leu Ser Gln Leu Pro Pro Lys Asp Gln Ala
145                 150                 155                 160
Tyr Pro Ala Ser Lys Tyr Pro Gly Tyr Thr Ala Met Leu Pro Leu Pro
                165                 170                 175
Lys Glu Ala Gly Arg Tyr Gln Phe Met Val Tyr Ala Gly Pro Leu Ala
            180                 185                 190
Asp Pro Thr Leu Lys Thr Leu Asp Arg Leu Thr Arg Ile Leu Lys Glu
        195                 200                 205
Lys Leu Leu Ser Ile Leu Met Arg Leu Leu Ser Glu Gly Ser Leu Val
    210                 215                 220
Leu
225
<210>189
<211>264
<212>PRT
<213>Chlamydia trachomatis
<400>189
Thr Asn Ala Asn Ser Lys Gly Glu Thr Pro Glu Tyr Ile Asp Ala Ile
 1               5                  10                  15
Ala Phe Arg Gly Phe Phe Ser Phe Ile Thr Glu Pro Phe Ala Ala Leu
            20                  25                  30
Leu Phe Val Ile Met Lys Phe Phe Lys Phe Leu Thr Gly Ser Trp Gly
        35                  40                  45
Ile Ser Ile Ile Leu Leu Thr Ile Val Leu Lys Leu Leu Leu Tyr Pro
    50                  55                  60
Leu Asn Ala Trp Ser Ile Arg Ser Met Arg Arg Met Gln Lys Leu Ser
65                  70                  75                  80
Pro Tyr Ile Gln Glu Ile Gln Gln Lys Tyr Lys Arg Glu Pro Lys Arg
                85                  90                  95
Ala Gln Met Glu Ile Met Ala Leu Tyr Lys Met Asn Lys Val Asn Pro
            100                 105                 110
Ile Thr Gly Cys Leu Pro Leu Leu Ile Gln Ile Pro Phe Leu Ile Ala
        115                 120                 125
Met Phe Asp Leu Leu Lys Ser Ser Phe Leu Leu Arg Gly Ala Ser Phe
    130                 135                 140
Ile Pro Gly Trp Ile Asp Asn Leu Thr Ala Pro Asp Val Leu Phe Ser
145                 150                 155                 160
Trp Glu Thr Pro Ile Trp Phe Ile Gly Lys Glu Phe His Leu Leu Pro
                165                 170                 175
Ile Leu Leu Gly Val Val Met Phe Ala Gln Gln Lys Ile Ser Ala Val
            180                 185                 190
Lys Arg Ser Gly Pro Ala Ser Asp Gln Gln Arg Gln Gln Glu Ala Met
        195                 200                 205
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Gly Thr Met Met Ala Leu Leu Phe Thr Phe Met Phe Tyr Asn Phe Pro
    210                 215                 220
Ser Gly Leu Asn Ile Tyr Trp Phe Ser Ser Met Leu Leu Gly Val Ile
225                 230                 235                 240
Gln Gln Trp Val Thr Asn Lys Ile Leu Asp Glu Gln His Leu Gln His
                245                 250                 255
Glu Val Ile Ile Asn Lys Lys Arg
            260
<210>190
<211>459
<212>PRT
<213>Chlamydia trachomatis
<400>190
Asp Ser Phe Met Arg Ala Trp Glu Glu Phe Leu Leu Leu Gln Glu Lys
  1               5                  10                  15
Glu Ile Gly Val Asp Thr Val Asn Lys Trp Leu Arg Ser Leu Lys Val
            20                  25                  30
Leu Cys Phe Asp Ala Cys Asn Leu Tyr Leu Glu Ala Lys Asp Ser Phe
        35                  40                  45
Gln Val Thr Trp Phe Glu Glu His Ile Arg His Lys Val Lys Ala Ser
    50                  55                  60
Leu Ile Asn Asn Asn Gly Lys Pro Ile Arg Val Arg Val Thr Ser Leu
65                  70                  75                  80
Asp Lys Ser Thr Pro Phe Lys Asp Thr Gln Ile Gln Gln Glu Lys Thr
                85                  90                  95
Ala Tyr Phe Thr Met Lys Tyr Gly Asp Ile Asp Pro Asn Met Ser Phe
            100                 105                 110
Ala Asn Phe Leu Val Thr Pro Glu Asn Asp Leu Pro Val Arg Ile Leu
        115                 120                 125
Gln Glu Phe Ala Lys Val Ser Glu Gln Gly Lys Gly Phe Pro Phe Asn
    130                 135                 140
Pro Ile Tyr Leu Phe Gly Pro Glu Ser Ser Gly Lys Thr His Leu Met
145                 150                 155                 160
Gln Ala Ala Val Gly Gly Leu Arg Glu Ala Gly Val Lys Thr Leu Tyr
                165                 170                 175
Val Thr Ser Glu Leu Phe Thr Glu His Leu Val Ser Ala Ile Arg Ser
            180                 185                 190
Gly Glu Met Gln Arg Phe Arg Ala Phe Tyr Arg Asn Val Glu Ala Leu
        195                 200                 205
Phe Ile Glu Asp Ile Glu Val Leu Ser Gly Lys Gly Ala Thr Gln Glu
    210                 215                 220
Glu Phe Phe His Thr Phe Xaa Ser Leu His Thr Glu Gly Lys Leu Ile
225                 230                 235                 240
Val Ile Ser Ser Thr Phe Ala Pro Gly Asp Leu Lys Ala Met Glu Glu
                245                 250                 255
Arg Leu Ile Ser Arg Phe Glu Trp Gly Ile Ser Ile Pro Val Ser Pro
            260                 265                 270
Leu Thr Arg Glu Gly Leu Lys Ser Phe Leu Glu Arg Arg Ile Glu Lys
        275                 280                 285
Leu Asn Ile Arg Ile Glu Glu Thr Ala Leu Asp Phe Leu Ile Gln Ala
    290                 295                 300
Leu Ser Ser His Val Lys Ser Leu Leu His Ala Leu Thr Thr Leu Ala
305                 310                 315                 320
Lys Arg Val Ala Tyr Lys Lys Leu Ser His Gln Met Leu Tyr Gln Gly
                325                 330                 335
Asp Ile Glu Ala Leu Leu His Asp Val Leu Gln Ala Ala Glu Ser Ile
            340                 345                 350
Arg Leu Thr Pro Ser Gly Ile Val Arg Ala Thr Ala Gln Tyr Tyr Gly
        355                 360                 365
Val Ser Pro Glu Ser Val Leu Gly Arg Ser Gln Ser Arg Glu Tyr Val
    370                 375                 380
```

Leu Pro Arg Gln Val Ala Met Phe Leu Cys Arg Gln Lys Leu Ser Leu
385 390 395 400
Ser Tyr Val Lys Ile Gly Glu Val Phe Ser Arg Asp His Ser Thr Val
405 410 415
Ile Ser Ser Ile Arg Ala Ile Ser Gln Lys Leu Glu Glu Asp Asp Arg
420 425 430
Glu Cys Asp Val Ser Cys Ala Ile Gln Glu Leu Thr Lys Arg Leu Ser
435 440 445
Ser Ala Tyr Gln Ser Leu Asp Phe Ile Glu Asp
450 455

<210>191
<211>119
<212>PRT
<213>Chlamydia trachomatis
<400>191
Gly Gly Phe Met Gly Ile Lys Pro His Asp Tyr Gly Cys Trp Gly Ser
1 5 10 15
Arg Gly Asn Val Phe Thr Leu Gln Asp Leu Asn Thr Gln Gln Ala Asn
20 25 30
Gln Ser Ala Ala Ala Ser Ser Ser Ser Val Leu Lys Ser Glu Cys Ala
35 40 45
Ala Lys Val Ala Arg Tyr Ala Leu Gly Phe Leu Phe Gly Leu Gly Phe
50 55 60
Ile Leu Ser Ile Val Thr Phe Ile Ala Ala Ala Ala Thr Leu Pro Leu
65 70 75 80
Gly Thr Thr Thr Ile Leu Ile Met Val Thr Gln Ile Ala Phe Ala Ala
85 90 95
Ala Leu Ala Phe Lys Leu Tyr Asp Leu Phe Lys His Asp Val Pro Thr
100 105 110
Cys Ser Ile Thr Ser Lys Ala
115

<210>192
<211>616
<212>PRT
<213>Chlamydia trachomatis
<400>192
Glu Ala Ser Met Tyr Phe Asp Arg Thr Lys Ile Asn Val Glu Ser Met
1 5 10 15
Lys Gln Ala Ile Leu Glu Arg Val Tyr Cys Gly Val Val Gln Thr Pro
20 25 30
Gln Ser Ala Ser Thr Arg Asp Ile Phe Ile Ala Val Ala Lys Thr Val
35 40 45
Leu Glu Trp Met Ala Lys Gly Trp Leu Lys Thr Gln Ser Ser Tyr Tyr
50 55 60
Asp Asn Asp Val Lys Arg Val Tyr Tyr Ile Ser Met Glu Phe Leu Leu
65 70 75 80
Gly Arg Ser Leu Lys Ser Asn Leu Leu Asn Leu Gly Leu Leu Asp Leu
85 90 95
Val Lys Glu Ala Leu Phe Asp Leu Gly Tyr Asp Phe Asp Gln Leu Val
100 105 110
Glu Met Glu His Asp Ala Gly Leu Gly Asn Gly Gly Leu Gly Arg Leu
115 120 125
Ala Ala Cys Phe Leu Asp Ser Met Ala Thr Leu Glu Ile Pro Ala Tyr
130 135 140
Gly Tyr Gly Leu Arg Tyr Asp Tyr Gly Ile Phe Asp Gln Lys Ile Glu
145 150 155 160
Asn Gly Phe Gln Val Glu Ser Pro Ile Glu Trp Leu Arg Tyr Gly Asn
165 170 175
Pro Trp Glu Ile Cys Arg Gly Glu Tyr Leu Tyr Pro Val His Phe Tyr
180 185 190
Gly Lys Val Lys His Ser Ile Asp Ser Arg Gly Arg Asp Val Ala Glu

09/22/2004 15:09:09

09/830,745 PCT/US99/25429

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        195                 200                 205
Leu Val Asp Ser Gln Glu Val Leu Ala Met Ala Tyr Asp Val Pro Val
    210                 215                 220
Pro Gly Phe Asn Asn Asp Thr Val Asn Ser Leu Arg Leu Trp Gln Ala
225                 230                 235                 240
Gln Ser Arg His Gly Phe Glu Phe Ser Tyr Phe Asn His Gly Asn Tyr
                245                 250                 255
Ile Arg Ala Ile Glu Asp Ile Ala Leu Ala Gly Asn Ile Thr Arg Val
            260                 265                 270
Leu Tyr Pro Asn Asp Ser Ile Ser Glu Gly Gln Glu Leu Arg Leu Lys
        275                 280                 285
Gln Glu Tyr Phe Leu Val Ser Ala Thr Ile Gln Asp Ile Leu Arg Arg
    290                 295                 300
Tyr Thr Lys Thr His Leu Ser Leu Asp Lys Leu Ser Glu Lys Val Ser
305                 310                 315                 320
Val Gln Leu Asn Asp Thr His Pro Ala Leu Gly Ile Ala Glu Met Met
                325                 330                 335
Arg Leu Leu Val Asp Arg Glu Glu Leu Asp Trp Asp Val Ala Trp Asp
            340                 345                 350
Ala Thr Thr Lys Ile Phe Asn Tyr Thr Asn His Thr Ile Leu Pro Glu
        355                 360                 365
Ala Leu Glu Arg Trp Ser Leu Asp Leu Phe Ser Lys Val Leu Pro Arg
    370                 375                 380
His Leu Glu Ile Ile Tyr Glu Ile Asn Ala Arg Trp Leu Ala Lys Val
385                 390                 395                 400
Ser Gln Lys Tyr Pro Gly Asp Asn Asp Lys Arg Arg Ala Leu Ser Ile
                405                 410                 415
Ile Glu Glu Gly Ser Ser Lys Phe Val Asn Met Ala Asn Leu Ala Val
            420                 425                 430
Val Gly Thr Asn Lys Val Asn Gly Val Ser Thr Phe His Ser Gln Leu
        435                 440                 445
Ile Lys Ser Thr Leu Phe Lys Asp Phe Val Glu Phe Phe Pro Asp Lys
    450                 455                 460
Phe Ile Asn Val Thr Asn Gly Ile Thr Pro Arg Arg Trp Leu Ala Leu
465                 470                 475                 480
Ser Asn Lys Lys Leu Ser Ser Leu Leu Asn Arg Thr Ile Gly Thr Glu
                485                 490                 495
Tyr Leu Thr Asn Leu Thr His Leu His Lys Val Ile Pro Leu Ala Glu
            500                 505                 510
Asp Ser Gly Phe Arg Glu Glu Trp Arg Asn Ile Lys Ile Gln Asn Lys
        515                 520                 525
Glu Glu Leu Ala Ala Arg Ile Tyr Lys Glu Leu Gly Val Thr Val Asn
    530                 535                 540
Pro Gln Ser Ile Phe Asp Cys His Ile Lys Arg Ile His Glu Tyr Lys
545                 550                 555                 560
Arg Gln Leu Thr Asn Ile Leu Arg Val Ile Tyr Phe Tyr Asn Glu Ile
                565                 570                 575
Arg Asn Gly Ser Gly Glu Ile Val Pro Thr Thr Val Ile Phe Gly Gly
            580                 585                 590
Lys Ala Ala Pro Gly Tyr Ala Met Ala Lys Leu Ile Ile Lys Leu Ile
        595                 600                 605
Asn Asn Val Ala Ala Val Val Lys
    610                 615
<210>193
<211>206
<212>PRT
<213>Chlamydia trachomatis
<400>193
Gln Leu Leu Leu Asn Asn Asp Pro Lys Val Asn Asp Gln Leu Lys Val
  1               5                  10                  15
Ile Phe Trp Pro Asn Tyr Arg Val Ser Leu Ala Glu Ala Ile Ile Pro
```

```
            20                  25                  30
Ala Thr Asp Leu Ser Glu Gln Ile Ser Thr Ala Gly Met Glu Ala Ser
        35                  40                  45
Gly Thr Gly Asn Met Lys Phe Ala Leu Asn Gly Ala Leu Thr Ile Gly
    50                  55                  60
Thr Met Asp Gly Ala Asn Ile Glu Met Ala Glu His Ile Gly Lys Glu
65                  70                  75                  80
His Met Phe Ile Phe Gly Leu Leu Glu Glu Glu Ile Ser Glu Leu Arg
                85                  90                  95
Lys Glu Tyr Tyr Pro Gln Gly Ile Cys Asn Ala Asn Pro Thr Ile Gln
            100                 105                 110
Glu Ile Leu Asp Met Ile Ala Gln Ala Lys Phe Ser Gln Glu Asp Lys
        115                 120                 125
Asp Leu Phe Lys Pro Ile Val Asn Arg Leu Leu Asn Glu Gly Asp Pro
    130                 135                 140
Phe Phe Val Leu Ala Asp Leu Glu Ala Tyr Ile Asn Thr Gln Asn Arg
145                 150                 155                 160
Val Ala Ser Leu Phe Lys Gln Pro Glu Glu Trp Thr Lys Lys Ser Ile
                165                 170                 175
Tyr Asn Val Gly Gly Ile Gly Phe Phe Ser Ser Asp Arg Ser Ile Ala
            180                 185                 190
Glu Tyr Ala Ser Asn Ile Trp Xaa Val Ser Arg Pro Thr Ser
        195                 200                 205
<210>194
<211>149
<212>PRT
<213>Chlamydia trachomatis
<400>194
Asp Asn Val Asn Ile Gln Val Glu Pro Thr Ala Ser Ser Pro Phe Lys
  1                 5                  10                  15
Thr Thr Gly Cys Ser Ser Thr Leu Pro Thr Ala Arg Ile Ala Ala Cys
            20                  25                  30
Gly Gly Phe Lys Ile Ala Val Lys Ser Glu Ile Pro Val Ile Pro Arg
        35                  40                  45
Leu Asp Thr Gln Lys Glu Pro Pro Leu Tyr Ser Ser Ser Ala Arg Asp
    50                  55                  60
Cys Cys Leu Ala Leu Val Ala Ser Pro Leu Ile Ser Ala Glu Ile Ile
65                  70                  75                  80
Pro Ile Phe Phe Leu Ser Ala Gln Arg Thr Ile Gly Val Ile Thr Pro
                85                  90                  95
Ser Gly Ile Ala Thr Ala Ile Glu Ile Ser Ile Val Glu Asn Arg Ile
            100                 105                 110
Ile Leu Leu Ser Thr Leu Leu Asn Pro Glu Leu Ile Ser Gly Asn Ser
        115                 120                 125
Phe Arg Ala Lys Ala Gln Ala Arg Thr Ile Gln Ser Leu Ile Glu Ser
    130                 135                 140
Leu Ile Phe Cys Ser
145
<210>195
<211>432
<212>PRT
<213>Chlamydia trachomatis
<400>195
Gly Asn Val Val Val Ser Leu Leu Lys Met Pro Lys Leu Ser Pro Thr
  1                 5                  10                  15
Met Glu Ile Gly Ile Leu Val Lys Trp His Lys Lys Ala Gly Asp Glu
            20                  25                  30
Ile His Phe Gly Asp Val Leu Leu Glu Ile Ser Thr Asp Lys Ala Val
        35                  40                  45
Leu Glu His Thr Ala Ser Glu Asp Gly Trp Leu Leu Glu Ile Leu Val
    50                  55                  60
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09/30/2004 15:36:56

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Lys Glu Gly Thr Lys Thr Pro Ile Gly Thr Pro Ile Ala Val Phe Ser
 65                  70                  75                  80
Thr Glu Gln Asn Ala Gln Tyr Asp Leu Lys Gln Leu Leu Pro Leu Glu
                85                  90                  95
Glu Thr Val Val Thr Asp Ala Ala Thr Glu Ala Ser Pro Lys Asp Ser
            100                 105                 110
Ala Gln Thr Asp Ser Gln Tyr Thr Ser Gly Pro Ser Ile Thr Met Met
        115                 120                 125
Gly Phe Arg Pro Glu Pro Pro Leu Ala Thr Pro Leu Thr Ile Lys His
    130                 135                 140
Ser Asn Asp Pro Val Leu Ala Ser Pro Leu Ala Lys Lys Leu Ala Lys
145                 150                 155                 160
Glu Gln Asn Leu Asp Leu Ser Gly Val Thr Gly Ser Gly Pro Gly Gly
                165                 170                 175
Arg Ile Ile Lys Lys Asp Leu Glu Lys Ala Pro Pro Leu Arg Ile Ala
            180                 185                 190
Gly Phe Gly Tyr Pro Glu Ala Pro Asn Val Asn Pro Gly Ser Tyr Ile
        195                 200                 205
Glu Glu Pro Leu Ser Pro Val Arg Glu Val Ile Ser Lys Arg Leu Gln
    210                 215                 220
Ala Ala Lys Thr Phe Ile Pro His Phe Tyr Val Arg Gln Arg Ile Tyr
225                 230                 235                 240
Ala Ser Pro Leu Leu Ala Leu Leu Lys Glu Leu Gln Glu Gln Asn Ile
                245                 250                 255
Lys Leu Ser Ile Asn Asp Cys Ile Val Arg Ala Cys Ala Leu Ala Leu
            260                 265                 270
Lys Glu Phe Pro Glu Ile Asn Ser Gly Phe Asn Ser Val Asp Asn Lys
        275                 280                 285
Ile Ile Arg Phe Ser Thr Ile Asp Ile Ser Ile Ala Val Ala Ile Pro
    290                 295                 300
Asp Gly Val Ile Thr Pro Ile Val Arg Cys Ala Asp Arg Lys Asn Ile
305                 310                 315                 320
Gly Met Ile Ser Ala Glu Ile Lys Gly Leu Ala Thr Lys Ala Lys Gln
                325                 330                 335
Gln Ser Leu Ala Glu Glu Glu Tyr Lys Gly Gly Ser Phe Cys Val Ser
            340                 345                 350
Asn Leu Gly Met Thr Gly Ile Ser Asp Phe Thr Ala Ile Leu Asn Pro
        355                 360                 365
Pro Gln Ala Ala Ile Leu Ala Val Gly Ser Val Glu Glu Gln Pro Val
    370                 375                 380
Val Leu Asn Gly Glu Leu Ala Val Gly Ser Thr Cys Met Leu Thr Leu
385                 390                 395                 400
Ser Val Asp His Arg Val Ile Asp Gly Tyr Pro Ala Ala Met Phe Met
                405                 410                 415
Lys Arg Leu Gln Arg Leu Leu Glu Ala Pro Ser Val Leu Leu Leu Asn
            420                 425                 430
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<210>196
<211>332
<212>PRT
<213>Chlamydia trachomatis
<400>196

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Lys Arg Gly Ser Met Pro Asn Phe Val Thr Leu Glu Ile Arg Glu Ala
  1               5                  10                  15
Ile Arg Gln Ala Ile Asp Glu Glu Met Thr Arg Asp Pro Asn Val Cys
            20                  25                  30
Ile Leu Gly Glu Glu Val Ala Glu Tyr Asn Gly Ala Tyr Lys Val Thr
        35                  40                  45
Lys Asn Leu Leu Asp Lys Trp Gly Pro Thr Arg Val Ile Asp Thr Pro
    50                  55                  60
Ile Ser Glu Ala Ala Phe Ser Gly Ile Gly Ile Gly Ala Ala Leu Thr
65                  70                  75                  80
```

```
Gly Leu Arg Pro Ile Ile Glu Phe Met Ser Trp Asn Phe Ser Leu Val
                 85                  90                  95
Ala Ala Asp Gln Ile Ile Ser His Ala Ala Lys Met Tyr Tyr Met Thr
            100                 105                 110
Gly Gly Lys Phe Ala Val Pro Ile Val Phe Arg Gly Ala Asn Gly Ala
        115                 120                 125
Ala Ala Gln Val Ser Cys Gln His Ser His Cys Val Glu Ala Leu Tyr
    130                 135                 140
Ala Asn Ile Pro Gly Leu Ile Val Ile Ala Pro Ser Thr Pro Ala Asp
145                 150                 155                 160
Ala Lys Gly Leu Leu Lys Ser Ala Ile Arg Asp Asn Asn Pro Val Leu
                165                 170                 175
Phe Leu Glu Asn Glu Leu Asp Tyr Asn Leu Lys Gly Glu Val Pro Ser
            180                 185                 190
Glu Glu Tyr Leu Ile Pro Ile Gly Lys Ala Arg Ile Val Gln Glu Gly
        195                 200                 205
Lys Asp Leu Thr Ile Ile Ser His Ser Arg Met Val Ser Ile Val Glu
    210                 215                 220
Gln Ala Ala Lys Thr Ala Lys Gln Arg Trp Gly Leu Ser Ile Glu Thr
225                 230                 235                 240
Ile Asp Leu Arg Thr Ile Lys Pro Leu Asp Val Ala Thr Leu Leu Thr
                245                 250                 255
Ser Val Lys Lys Thr Gly Asn Cys Leu Val Val Glu Glu Gly His Tyr
            260                 265                 270
Phe Cys Gly Ile Ser Ala Glu Val Ile Thr Thr Ile Thr Glu His Ile
        275                 280                 285
Phe Asp Tyr Leu Asp His Pro Pro Leu Arg Val Cys Gln Lys Glu Thr
    290                 295                 300
Pro Met Pro Tyr Asn Lys Thr Leu Glu Met Ala Thr Leu Pro Asn Ile
305                 310                 315                 320
Asn Arg Ile Leu Asp Ala Ile Glu Lys Ile Met Arg
                325                 330
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<210>197
<211>129
<212>PRT
<213>Chlamydia trachomatis
<400>197

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Gln Asn Pro Lys Arg Phe Leu Met Val Phe Leu Ser Ile Thr Leu Asn
  1                 5                  10                  15
Gly Phe Asp Leu Phe Asn Ser Leu Ile Gly Phe Arg Glu Ala Tyr His
             20                  25                  30
His Met Gln Gln Thr Gly Ser Pro Ile Ile Val Glu Ala Leu Cys Ser
         35                  40                  45
Arg Phe Arg Gly His Ser Ile Ser Asp Pro Asn Leu Tyr Arg Ser Lys
     50                  55                  60
Glu Glu Met Gln Cys Leu Leu Lys Arg Asp Pro Ile Leu Phe Ala Lys
 65                  70                  75                  80
Glu Trp Leu Ile Arg Ala Asn Val Leu Ser Glu Asp Asp Phe Lys Asp
                 85                  90                  95
Leu Arg Gln Thr Ser Lys Thr Ala Val Leu Glu Ala Val Ala Gln Ala
            100                 105                 110
Arg Leu Asp Pro Glu Pro Ala Val Ala Thr Leu Glu Glu Gly Val Tyr
        115                 120                 125
Ala
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<210>198
<211>140
<212>PRT
<213>Chlamydia trachomatis
<400>198

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Leu Cys Cys Trp Asn Ile Pro Leu Arg Gln Leu Ala Ala Glu Leu Leu
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```
  1               5                  10                  15
Gly Lys Glu Thr Gly Cys Ala Leu Gly Arg Gly Gly Ser Met His Met
            20                  25                  30
Cys Gly Asp Arg Leu Pro Gly Gly Phe Gly Ile Val Gly Gly Gln Ile
        35                  40                  45
Pro Leu Ala Ala Gly Ala Ala Phe Ser Met Lys Tyr Gln Asn Ser Ser
    50                  55                  60
Ser Ile Ser Met Cys Phe Ile Gly Asp Gly Ala Val Ala Gln Gly Val
65                  70                  75                  80
Phe His Glu Thr Leu Asn Phe Val Ala Leu His Ser Leu Pro Leu Met
                85                  90                  95
Leu Ile Ile Glu Asn Asn Gly Trp Ser Met Gly Thr Ala Leu His Arg
            100                 105                 110
Ala Ile Ala Lys Gln Pro Ile Ala Glu Ser Gln Ala Ile Ser Tyr Gly
        115                 120                 125
Leu Ser Phe Asp His Phe Glu Trp Ile Arg Phe Ile
    130                 135                 140
<210>199
<211>126
<212>PRT
<213>Chlamydia trachomatis
<400>199
Met His Pro Leu Thr Leu Asn Ile Ala Ser Glu Glu Thr Thr Glu Ala
  1               5                  10                  15
Xaa Val Phe His Val Ile Glu Asn Phe Gly Asn Ala Phe Cys Ile Asp
            20                  25                  30
Leu Leu Lys Lys Met Leu Leu Ile Arg Glu Phe Glu Ile Arg Gly Glu
        35                  40                  45
Glu Ala Tyr Leu Glu Gly Leu Val Gly Gly Phe Tyr His Ser Tyr Ile
    50                  55                  60
Gly Gln Glu Ala Val Ala Thr Ala Ala Ile Ala Cys Thr Gly Lys Asp
65                  70                  75                  80
His Trp Phe Phe Ser Ser Tyr Arg Cys His Gly Val Ala Leu Leu Leu
                85                  90                  95
Glu Tyr Pro Phe Thr Thr Thr Gly Ser Arg Thr Ser Arg Glu Arg Asn
            100                 105                 110
Arg Val Cys Phe Arg Thr Arg Arg Ile Tyr Ala Tyr Val Trp
        115                 120                 125
<210>200
<211>403
<212>PRT
<213>Chlamydia trachomatis
<400>200
Ser Trp Phe Glu Val Leu Lys Phe His Phe Pro Cys Ser Glu Gly Leu
  1               5                  10                  15
Ile Arg Gly Phe Ser Ile Glu Phe Leu Cys Cys Ile Leu Thr Asp Lys
            20                  25                  30
Lys Ile Gln Tyr Pro Leu Lys Asn Phe Ile Cys Val Glu Phe Ile Val
        35                  40                  45
Asn Ser Phe Phe Gly Ile Leu Pro Arg Gly Ile Pro Asn Val Gly Gly
    50                  55                  60
Leu Ser Glu Val Ala Gly Glu Asn Lys Gln Ser Leu Glu Glu Arg Glu
65                  70                  75                  80
Gln Asp Lys Glu Leu Lys Leu Glu Lys Lys Leu Leu Ala Ile Arg Lys
                85                  90                  95
Arg Ile Lys Cys Phe Cys Pro Gln Gln Pro Glu Ile Ser Val Gln Ala
            100                 105                 110
Ala Pro Leu Lys His Thr Gly Thr Phe Pro Cys Ser Glu Glu Glu Leu
        115                 120                 125
Arg Asp Ile Ser Asp Leu Phe Ser Ser Leu Lys Ser Phe Arg Gln Gln
    130                 135                 140
```

09/07/2001 09:36:29

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Leu Ala Gln Leu Phe Phe Tyr Thr Pro Pro Leu Asn Leu Glu Trp Glu
145                 150                 155                 160
Asp Phe Leu Lys Phe Phe Phe Ala Phe Glu Lys Arg Glu Leu Gly Gly
                165                 170                 175
Ile Leu Phe Ser Ala Gly Pro Phe Glu Ser Phe Asp Arg Tyr Leu Tyr
            180                 185                 190
Gln Val Asn Lys Ala Arg Pro Val Pro Val Leu Ile Ala Thr Thr Val
        195                 200                 205
Ser Tyr Ala Leu Gln Ala Tyr Cys Ser Tyr Ile Asn Arg Ala Pro Phe
    210                 215                 220
Gln Glu Lys Glu Asn Phe Phe Gln Leu Gly Glu Ala Val Gly Ile Phe
225                 230                 235                 240
Leu Lys Glu Arg Lys Val Ser Ile Ala Leu Met Tyr Lys Glu Ile Leu
                245                 250                 255
Asp Leu Asp Asn Lys Gln Tyr Ser Glu Leu Cys Arg Gly Leu Gln Lys
            260                 265                 270
Ser Gln Ile Val Gln Gly Glu Val Phe His Ser Ser Thr Gln Glu Arg
        275                 280                 285
Asp Gly Leu Asn Pro Ile Ser Val Asn Tyr Asp Leu Met Gly Thr Ile
    290                 295                 300
Ala Ala Leu Ser Val Asn Ile Asp Arg Ser Cys Leu Arg Phe Ser Gly
305                 310                 315                 320
Ser His Ile Phe His Asp Asp Glu Met Ala Ile Glu Thr Leu His Lys
                325                 330                 335
Gly Gly Asp Val Phe Thr Phe Ser Ser Leu Ala Glu Phe Gln Phe Ser
            340                 345                 350
Glu Lys Arg Leu Leu His Leu Val Ser Thr Gly Arg Val Cys Pro Glu
        355                 360                 365
Ile Ile Arg Lys Lys Leu Ile Lys Val Leu Leu Leu Lys Lys Arg Ala
    370                 375                 380
Leu Cys Lys Pro Phe Cys Arg His Ile Gln Ile Thr Ser Glu Thr Ala
385                 390                 395                 400
Gln Leu Asn
```

<210>201
<211>354
<212>PRT
<213>Chlamydia trachomatis
<400>201

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Met Ser Gln Ser Thr Tyr Ser Leu Glu Gln Leu Ala Asp Phe Leu Lys
  1                 5                  10                  15
Val Glu Phe Gln Gly Asn Gly Ala Thr Leu Leu Ser Gly Val Glu Glu
             20                  25                  30
Ile Glu Glu Ala Lys Thr Ala His Ile Thr Phe Leu Asp Asn Glu Lys
         35                  40                  45
Tyr Ala Lys His Leu Lys Ser Ser Glu Ala Gly Ala Ile Ile Ile Ser
     50                  55                  60
Arg Thr Gln Phe Gln Lys Tyr Arg Asp Leu Asn Lys Asn Phe Leu Ile
 65                  70                  75                  80
Thr Ser Glu Ser Pro Ser Leu Val Phe Gln Lys Cys Leu Glu Leu Phe
                 85                  90                  95
Ile Thr Pro Val Asp Ser Gly Phe Pro Gly Ile His Pro Thr Ala Val
            100                 105                 110
Ile His Pro Thr Ala Ile Ile Glu Asp His Val Cys Ile Glu Pro Tyr
        115                 120                 125
Ala Val Val Cys Gln His Ala His Val Gly Ser Ala Cys His Ile Gly
    130                 135                 140
Ser Gly Ser Val Ile Gly Ala Tyr Ser Thr Val Gly Gln His Ser Tyr
145                 150                 155                 160
Ile His Pro Arg Val Val Ile Arg Glu Arg Val Ser Ile Gly Lys Arg
                165                 170                 175
```

```
Val Ile Ile Gln Pro Gly Ala Val Ile Gly Ser Cys Gly Phe Gly Tyr
            180                 185                 190
Val Thr Ser Ala Phe Gly Gln His Lys His Leu Lys His Leu Gly Lys
        195                 200                 205
Val Ile Ile Glu Asp Asp Val Glu Ile Gly Ala Asn Thr Thr Ile Asp
    210                 215                 220
Arg Gly Arg Phe Lys His Ser Val Val Arg Glu Gly Ser Lys Ile Asp
225                 230                 235                 240
Asn Leu Val Gln Ile Ala His Gln Val Glu Val Gly Gln His Ser Met
                245                 250                 255
Ile Val Ala Gln Ala Gly Ile Ala Gly Ser Thr Lys Ile Gly Asn His
            260                 265                 270
Val Ile Ile Gly Gly Gln Ala Gly Ile Thr Gly His Ile Cys Ile Ala
        275                 280                 285
Asp His Val Ile Met Met Ala Gln Thr Gly Val Thr Lys Ser Ile Thr
    290                 295                 300
Ser Pro Gly Ile Tyr Gly Gly Ala Pro Ala Arg Pro Tyr Gln Glu Ile
305                 310                 315                 320
His Arg Gln Val Ala Lys Val Arg Asn Leu Pro Arg Leu Glu Glu Arg
                325                 330                 335
Ile Ala Ala Leu Glu Lys Leu Val Gln Lys Leu Glu Ala Leu Ser Glu
            340                 345                 350
Gln His

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<212>PRT
<213>Chlamydia trachomatis
<400>202
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Ser Leu Pro Thr Phe Ala Ala Asn Ser Thr Gly Thr Ile Gly Ile Val
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Asn Leu Arg Arg Cys Leu Glu Glu Ser Ala Leu Gly Lys Lys Glu Ser
         35                  40                  45
Ala Glu Phe Glu Lys Met Lys Asn Gln Phe Ser Asn Ser Met Gly Lys
     50                  55                  60
Met Glu Glu Glu Leu Ser Ser Ile Tyr Ser Lys Leu Gln Asp Asp Asp
 65                  70                  75                  80
Tyr Met Glu Gly Leu Ser Glu Thr Ala Ala Ala Glu Leu Arg Lys Lys
                 85                  90                  95
Phe Glu Asp Leu Ser Ala Glu Tyr Asn Thr Ala Gln Gly Gln Tyr Tyr
            100                 105                 110
Gln Ile Leu Asn Gln Ser Asn Leu Lys Arg Met Gln Lys Ile Met Glu
        115                 120                 125
Glu Val Lys Lys Ala Ser Glu Thr Val Arg Ile Gln Glu Gly Leu Ser
    130                 135                 140
Val Leu Leu Asn Glu Asp Ile Val Leu Ser Ile Asp Ser Ser Ala Asp
145                 150                 155                 160
Lys Thr Asp Ala Val Ile Lys Val Leu Asp Asp Ser Phe Gln Asn Asn
                165                 170                 175

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<213>Chlamydia trachomatis
<400>203
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             20                  25                  30
Thr Ser Glu Gly Arg Met Val Val Glu Ser Ile Thr Ile Thr Thr Gln
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          35                  40                  45
Gly Glu Asn Thr Gln Asn Lys Arg Ala Ile Pro Lys Ile Lys Thr Lys
     50                  55                  60
Gln Gly Thr Leu Phe Ser Gln Ala Asp Phe Asp Glu Asp Leu Arg Thr
 65                  70                  75                  80
Leu Ser Lys Asn Phe Asp Arg Val Glu Pro Ile Val Glu Phe Arg Asn
                 85                  90                  95
Gly Gln Ala Val Ile Ser Leu Ile Leu Thr Ala Lys Ser Val Ile Arg
            100                 105                 110
Glu Ile Asn Ile Ser Gly Asn Glu Ala Ile Pro Thr His Lys Ile Leu
        115                 120                 125
Lys Thr Leu Glu Leu Tyr Lys Asn Asp Leu Phe Asp Arg Glu Leu Phe
    130                 135                 140
Phe Lys Asn Phe Asp Ala Leu Arg Thr Leu Tyr Leu Lys Arg Gly Tyr
145                 150                 155                 160
Tyr Asp Ser Gln Leu Ser Tyr Ser His Asn His Asn Glu Lys Glu Gly
                165                 170                 175
Phe Ile Asp Ile Ser Ile Glu Ile Lys Glu Gly Arg His Gly Arg Ile
            180                 185                 190
Lys Lys Leu Thr Ile Ser Gly Ile Thr Arg Thr Glu Ala Ser Asp Leu
        195                 200                 205
Gly Asp Ile Val Leu Thr Lys Gln Tyr Ser Thr Thr Thr Ser Trp Phe
    210                 215                 220
Thr Gly Ala Gly Val Tyr His Pro Asp Met Val Glu Gln Asp Leu Phe
225                 230                 235                 240
Ala Ile Thr Asn Tyr Phe Gln Asn Lys Gly Tyr Ala Asp Ala Lys Val
                245                 250                 255
Ser Lys Glu Val Ser Thr Asp Ala Lys Gly Asn Ile Thr Leu Leu Ile
            260                 265                 270
Val Val Asp Lys Gly Pro Leu Tyr Thr Leu Gly His Val His Ile Glu
        275                 280                 285
Gly Phe Thr Ala Leu Ser Lys Arg Leu Leu Asp Lys Gln Leu Leu Val
    290                 295                 300
Gly Pro Asn Ser Leu Tyr Cys Pro Asp Lys Ile Trp Thr Gly Ala Gln
305                 310                 315                 320
Lys Ile Arg Ser Ala Tyr Ala Arg Tyr Gly Tyr Val Asn Thr Asn Val
                325                 330                 335
Asp Val Ser Phe Ser Ala His Pro Thr Leu Pro Val Tyr Asp Val Thr
            340                 345                 350
Tyr Arg Val Ser Glu Gly Ser Pro Tyr Lys Ile Gly Leu Ile Lys Ile
        355                 360                 365
Lys Gly Asn Thr His Thr Lys His Asp Val Ile Leu His Glu Thr Ser
    370                 375                 380
Leu Phe Pro Gly Asp Thr Phe Tyr Arg Leu Lys Leu Glu Asp Thr Glu
385                 390                 395                 400
Thr Arg Leu Arg Asn Thr Gly Tyr Phe Lys Ser Val Ser Val Tyr Thr
                405                 410                 415
Val Arg Ser Gln Leu Asp Pro Leu Asp Ser Asn Asp Leu Tyr Arg Asp
            420                 425                 430
Val Phe Ile Glu Val Lys Glu Thr Glu Thr Gly Asn Leu Gly Leu Phe
        435                 440                 445
Leu Gly Phe Ser Ser Ile Asp His Leu Phe Gly Gly Ala Glu Ile Ala
    450                 455                 460
Glu Ser Asn Phe Asp Leu Phe Gly Ala Arg Asn Phe Leu Lys Lys Gly
465                 470                 475                 480
Phe Lys Ser Leu Arg Gly Gly Gly Glu Tyr Leu Phe Leu Lys Ala Asn
                485                 490                 495
Leu Gly Asp Lys Val Thr Asp Tyr Thr Val Lys Trp Thr Lys Pro His
            500                 505                 510
Phe Leu Asn Thr Pro Trp Ile Leu Gly Val Glu Leu Asp Lys Ser Ile
        515                 520                 525
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Docket No. 5000-1-PCT

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Asn Lys Ala Leu Ser Lys Asp Tyr Ser Val Asp Thr Tyr Gly Gly Asn
    530                 535                 540
Ile Ser Thr Thr Tyr Ile Leu Asn Asp Lys Leu Lys Tyr Gly Met Tyr
545                 550                 555                 560
Tyr Arg Gly Ser Gln Thr Ser Leu Ser Leu Arg Lys Lys Thr Ser Ser
                565                 570                 575
Ser Asn Arg Leu Gly Pro Asp Leu Asp Ser Asn Lys Gly Phe Val Ser
            580                 585                 590
Ala Ala Gly Leu Asn Val Leu Tyr Asp Ser Ile Asp Asn Pro Arg Lys
        595                 600                 605
Pro Thr Met Gly Ile Arg Ser Phe Leu Asn Xaa Glu Leu Ser Gly Leu
    610                 615                 620
Gly Gly Thr Tyr Gln Phe Thr Lys Leu Thr Ala Ser Gly Ser Ile Tyr
625                 630                 635                 640
Arg Leu Leu Thr Lys Lys Gly Val Leu Lys Xaa Arg Ala Glu Ala Xaa
                645                 650                 655
Phe Ile Lys Pro Phe Gly Thr Thr Thr Ala Gln Gly Ile Pro Val Ser
            660                 665                 670
Glu Arg Phe Phe Leu Gly Gly Glu Thr Thr Val Arg Gly Tyr Lys Pro
        675                 680                 685
Phe Ile Ile Gly Pro Lys Phe Ser Pro Thr Glu Pro Gln Gly Gly Leu
    690                 695                 700
Ser Ser Leu Leu Leu Thr Glu Glu Phe Gln Tyr Pro Leu Ile Ser Gln
705                 710                 715                 720
Pro Cys Ile Asn Ala Phe Val Phe Leu Asp Ser Gly Phe Ile Gly Ile
                725                 730                 735
Glu Glu His Thr Ile Arg Leu Lys Asp Leu Cys Ser Ser Ala Gly Phe
            740                 745                 750
Gly Leu Arg Phe Asp Met Met Asn Asn Val Pro Ile Met Leu Gly Trp
        755                 760                 765
Gly Trp Pro Phe Arg Pro Thr Glu Ile Leu Asn Asn Glu Lys Ile Asp
    770                 775                 780
Val Ser Gln Arg Phe Phe Phe Ala Leu Gly Gly Val Phe
785                 790                 795
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<213>Chlamydia trachomatis
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             20                  25                  30
Lys Ile Ala Phe Glu Leu Leu Glu Trp Asp Pro Ser Gln Ile Glu Ala
         35                  40                  45
Met Ala Leu Ala Leu Gln Glu Phe Ser Thr Ser His Ala Thr Cys Ser
     50                  55                  60
Asn Cys Phe Cys Leu Lys Ile Ser Gln Thr Ser Pro Cys Asn Phe Cys
 65                  70                  75                  80
Ser Glu Ser Arg Asp Ser Ser Ser Leu Cys Ile Val Ala Thr Pro Lys
                 85                  90                  95
Asp Val Phe Ala Leu Glu Lys Ser Lys Ile Phe Lys Gly His Tyr Phe
            100                 105                 110
Val Leu Gly Asn Leu Leu Ser Pro Ile Thr Gly Lys His Leu Ser Leu
        115                 120                 125
Glu Lys Leu Ala Ile Leu Lys Gln Arg Ile Glu Ala Cys Ser Pro Lys
    130                 135                 140
Glu Met Ile Ile Ala Leu Asp Ala Thr Leu Glu Gly Asp Ala Thr Ala
145                 150                 155                 160
Leu Phe Leu Lys Gln Glu Phe Ser Tyr Leu Pro Ile Lys Ile Ser Arg
                165                 170                 175
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Asn Thr Leu Ala Arg Ala Phe Ser Gly Arg Asn Cys Phe
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<211>341
<212>PRT
<213>Chlamydia trachomatis
<400>205
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20 25 30
Asn Ala Asp Leu Glu Lys Ile Val Glu Thr Ser Asp Glu Trp Ile Ser
35 40 45
Thr Arg Thr Gly Ile Lys Glu Arg Arg Ile Ala Ser Ala Glu Glu Phe
50 55 60
Ser Ser Phe Met Gly Ala Lys Ala Ala Glu Lys Ala Ile Glu Ala Ala
65 70 75 80
Lys Ile Ser Lys Ser Gln Val Asp Cys Ile Val Phe Ser Thr Ala Ala
85 90 95
Pro Asp Tyr Ile Phe Pro Ser Ser Ala Ala Leu Ala Gln Ala Tyr Leu
100 105 110
Gly Ile Lys Glu Ile Pro Ala Phe Asp Cys Leu Ala Ala Cys Thr Gly
115 120 125
Phe Leu Tyr Gly Leu Ser Ile Ala Lys Ala Tyr Val Glu Ser Gly Met
130 135 140
Tyr Gln Cys Val Leu Val Ile Ala Ala Asp Lys Leu Ser Ser Phe Val
145 150 155 160
Asn Tyr Gln Asp Arg Asn Thr Cys Val Leu Phe Gly Asp Gly Gly Ser
165 170 175
Ala Cys Ile Val Gly His Ser Arg Pro Gly Ala Leu Glu Ile Ser Lys
180 185 190
Val Asn Leu Gly Ala Asp Gly Lys Gln Gly Asp Leu Leu Arg Leu Pro
195 200 205
Ala Gly Gly Ser Arg Cys Pro Ala Ser Gln Asp Thr Val Gln Asn His
210 215 220
Gln His Phe Ile Thr Met Glu Gly Lys Glu Val Phe Lys His Ala Val
225 230 235 240
Arg Arg Met Glu Phe Ala Ala Lys Thr Cys Ile Thr Glu Ala Gly Leu
245 250 255
Gln Glu Lys Asp Ile Asp Trp Leu Val Pro His Gln Ala Asn Glu Arg
260 265 270
Ile Ile Asp Ala Ile Ala Lys Arg Phe Ala Val Lys Asp Ser Arg Val
275 280 285
Phe Lys Thr Leu Ala Lys Tyr Gly Asn Thr Ala Ala Ser Ser Val Gly
290 295 300
Ile Ala Leu Asp Glu Leu Leu Arg Thr His Asp Ile His Val Ala Glu
305 310 315 320
Arg Leu Leu Leu Val Ala Phe Gly Gly Gly Leu Ser Trp Gly Ala Val
325 330 335
Ile Leu Gln Gln Val
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<210>206
<211>309
<212>PRT
<213>Chlamydia trachomatis
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Val Gly Met Gly Arg Asp Leu Tyr Gln Gln Ser Ser Glu Val Ala Arg

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            20                  25                  30
Leu Phe Ser Gln Ala Asp Glu Phe Leu Gly Phe Ser Leu Ser Ser Ile
        35                  40                  45
Met Phe Glu Gly Pro Glu Glu Val Leu Leu Lys Thr Ser Asn Ser Gln
    50                  55                  60
Leu Ala Ile Tyr Leu His Ser Leu Ala Val Leu Glu Val Leu Ser Thr
65                  70                  75                  80
His Cys Pro Phe Glu Pro Ile Leu Val Ser Gly Leu Ser Leu Gly Glu
                85                  90                  95
Tyr Thr Ala Leu Thr Ala Ser Lys Arg Ile Ser Leu Glu Asp Gly Leu
            100                 105                 110
Arg Ile Val Gln Lys Arg Ala Glu Leu Met Asn Ala Ala Cys Glu Glu
        115                 120                 125
Ser Ser Gly Ala Met Ala Ala Val Leu Gly Leu Thr Ala Asp Val Val
    130                 135                 140
Leu Pro Ala Leu Glu Ser Leu Gly Glu Gly Ile Trp Val Ala Asn Tyr
145                 150                 155                 160
Asn Ala Pro Lys Gln Ile Val Ile Ala Gly Ile Arg Asn Lys Val Glu
                165                 170                 175
Glu Ala Ser Val Ile Leu Arg Glu Leu Gly Ala Lys Lys Val Val Met
            180                 185                 190
Leu Lys Val Ala Gly Ala Phe His Thr Pro Leu Met Gln Thr Ala Gln
        195                 200                 205
Asp Glu Leu Ala Pro Tyr Leu Tyr Gln Leu Ala Ile Lys Asp Ser Asn
    210                 215                 220
Val Ala Phe Ala Ser Asn Val Ile Gly Glu Leu Val Tyr Glu Ser Glu
225                 230                 235                 240
Ala Ile Arg Ser Leu Xaa Val Arg Gln Met Thr Ser Pro Thr Leu Trp
                245                 250                 255
Tyr Gln Thr Cys Phe Gln Ile Asp Pro Lys Val Asp Leu Phe Leu Glu
            260                 265                 270
Leu Gly Pro Gly Asn Val Leu Thr Gly Leu Ser Arg Ser Ile Gly Leu
        275                 280                 285
Ser Ser Pro Cys Lys His Leu Gly Ser Met Glu Asp Ile Glu Asn Phe
    290                 295                 300
Cys Arg Xaa Cys Glu
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<210>207
<211>248
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<213>Chlamydia trachomatis
<400>207
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Arg Gly Ile Gly Phe Ser Ile Ala Lys Leu Phe Ala Glu Gln Gly Ala
            20                  25                  30
Asn Val Gln Ile Trp Gly Ile Asn Gly Glu Ala Gly Gln Ala Ala Ala
        35                  40                  45
Gln Thr Leu Ser Glu Gln Thr Gly Arg Gln Val Ser Phe Ala Leu Val
    50                  55                  60
Asp Val Ser Lys Asn Asp Met Val Ser Ala Gln Val Gln Asn Phe Leu
65                  70                  75                  80
Ser Glu Tyr Asn Thr Ile Asp Val Ile Val Asn Asn Ala Gly Ile Thr
                85                  90                  95
Arg Asp Ala Leu Leu Met Arg Met Ser Glu Glu Glu Trp Ser Ser Val
            100                 105                 110
Ile Asn Thr Asn Leu Gly Ser Ile Tyr Asn Val Cys Ser Ala Val Ile
        115                 120                 125
Arg Pro Met Ile Lys Ala Arg Ser Gly Ala Ile Ile Asn Ile Ser Ser
    130                 135                 140
Ile Val Gly Leu Arg Gly Ser Pro Gly Gln Thr Asn Tyr Ala Ala Ala
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145 150 155 160
Lys Ala Gly Ile Ile Gly Phe Ser Lys Ala Leu Ser Lys Glu Val Gly
165 170 175
Ser Lys Asn Ile Arg Val Asn Cys Ile Ala Pro Gly Phe Ile Asp Thr
180 185 190
Asp Met Thr Lys Ser Leu Asn Asp Asn Leu Lys Asn Glu Trp Leu Lys
195 200 205
Gly Val Pro Leu Gly Arg Val Gly Met Pro Glu Glu Ile Ala Lys Ala
210 215 220
Ala Leu Phe Leu Xaa Ser Asp Gly Ser Ser Tyr Ile Thr Gly Gln Val
225 230 235 240
Leu Ser Val Asp Gly Gly Met Ala
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<210>208
<211>77
<212>PRT
<213>Chlamydia trachomatis
<400>208
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20 25 30
Asn Ala Asp Ser Leu Asp Leu Thr Glu Leu Ile Met Thr Leu Glu Glu
35 40 45
Lys Phe Ala Phe Glu Ile Ser Glu Asp Asp Ala Glu Gln Leu Arg Thr
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Val Gly Asp Val Ile Lys Tyr Ile Gln Glu His Gln Asn
65 70 75

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<400>209
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Ile Asp Lys Ala Phe Leu Leu Lys Lys Thr Xaa Leu Phe Ala Ser Leu
20 25 30
Asp Met Asp Val Leu Leu Ser Ile Ala Asp Lys Ser Glu Val Met Leu
35 40 45
Phe Lys Ala Gly Ser Glu Ile Phe Ser Glu Gly Gln Pro Ser Phe Ser
50 55 60
Leu Tyr Val Ile Ala Glu Gly Cys Val Arg Ile Phe Ala Lys Glu Pro
65 70 75 80
Thr Ile Asn Val Arg Leu Lys Pro Leu Asp Cys Phe Gly Glu Glu Ser
85 90 95
Phe Phe Asn Asn Lys Val Arg Glu Tyr Ser Ala Glu Ala Ile Thr Leu
100 105 110
Val Lys Thr Leu Ile Leu Asn Lys Gly Gln Phe Leu Ser Ile Ile Glu
115 120 125
Glu Cys Pro Ser Val Ser Leu Val Leu Leu Glu Phe Tyr Ser Lys Gln
130 135 140
Ile Val Phe Arg Asp Gln
145 150

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<213>Chlamydia trachomatis
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Ile His Pro Ala Pro Ile Arg Thr Leu Tyr Tyr His Phe Arg Arg Val

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Tyr Ser Phe Ser Asn Ile Xaa Arg Thr His Tyr Ser Lys Ala Ile Leu
            35                  40                  45
Arg Asn Leu Ser Leu Glu Ser Ile His Arg Arg Arg Ser Ile Arg Glu
        50                  55                  60
Trp Phe Ala Asp Met Asn Asp Thr Glu Lys Arg Gln Ala Glu Ile Leu
65                  70                  75                  80
Ser Val Thr His Leu Lys Asn Pro Gln Glu Arg Asn Gln Met Phe Ala
                85                  90                  95
Phe Gln His Leu Leu Asn Leu Lys Asn Arg Ala Val Leu Pro Asn Leu
            100                 105                 110
Leu Leu His Met Asn Lys Leu Gly Leu Ser Gly Lys Leu Lys Thr Leu
        115                 120                 125
Asn Met Leu Lys Asn Ser Val Trp Ala Lys Asp Phe Leu Thr Leu Glu
    130                 135                 140
Leu Leu Lys Arg Trp Ser Ser Leu Pro Gln His Pro Thr Ile Ala Ala
145                 150                 155                 160
Ala Leu His Leu Tyr Phe Val Glu His Asp Phe Leu Tyr Val Ser Asp
                165                 170                 175
Ile Ala Asp Asp Leu Tyr Asp Gln Ser Gly Asp Arg Leu Phe Thr Ala
            180                 185                 190
Val Leu Ile Val Arg Lys His Lys Pro Gly Gly Glu Tyr Gln Ala Leu
        195                 200                 205
Ala Glu Lys His Leu Ser Glu Ile Leu Glu Ser Glu Asp Pro Glu Leu
    210                 215                 220
Ile Ile Lys Gly Leu Ser Ile Leu Ala Leu Glu Arg Ser Pro Ser Asn
225                 230                 235                 240
Phe Pro Ile Ile Leu Pro Phe Leu Thr His Pro Asn Glu Gln Val Phe
                245                 250                 255
Leu Gln Ala Cys Leu Ser Leu Glu Thr Cys Ala Asp Lys Gln Tyr Ala
            260                 265                 270
Gln Tyr Gly Arg Thr Val Leu Asn Thr Leu Lys Lys Thr Lys Asp Thr
        275                 280                 285
Gln Ala Ala Gln Ala Leu Leu Asn Thr Leu Ala Ala Leu Leu Asp Ala
    290                 295                 300
Ser Leu Val Tyr Glu Phe Val Leu Ala Ser Val Gln Leu Lys Ser Val
305                 310                 315                 320
Leu Arg Lys Leu Ala Glu Thr Ile Asp Ala Ser Leu Pro Lys Glu Cys
                325                 330                 335
Ile Pro Ile Leu Ile Glu Met Val Ala Asp His Ser Leu His Asn Ser
            340                 345                 350
Cys Arg Ile Met Ala Ala Lys Ala Leu Ser His Ile Asp Ser Arg Gln
        355                 360                 365
Leu Lys Arg Leu Ala Leu Lys Ile Leu Lys Ser Lys Ala Ala Lys Ala
    370                 375                 380
Leu Phe Tyr Asp Tyr His Lys Asn Phe Ile Gln Lys Arg Tyr Pro Arg
385                 390                 395                 400
Tyr Asp Leu His Leu Leu Ile Glu Ser Leu Glu Ala Asn Tyr Gln Ala
                405                 410                 415
Glu Val Asn Phe Met Leu Ala Phe Leu Ala Ile Val Gly Ser Ser Asp
            420                 425                 430
Tyr Ala Asp Val Leu Ile Arg Ser Leu Thr Gly Lys Asn Leu Lys Ala
        435                 440                 445
Arg Ala Gln Ala Leu Glu Ser Leu Glu Lys Asp Cys Glu Asn His Leu
    450                 455                 460
Phe Thr Leu Val Thr Pro Phe Val Tyr Arg Asp Lys His Thr Ser Asp
465                 470                 475                 480
Glu Lys Tyr Tyr Met Lys Lys Gly Val Glu Pro Leu Ala Ile Glu Glu
                485                 490                 495
Leu Leu Asn Arg Leu Glu Gln Thr Pro Phe Leu Phe Ser Lys Leu Ile
            500                 505                 510
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Phe Cys Ser Thr Lys Leu Cys
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<213>Chlamydia trachomatis
<400>211

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Glu Glu Lys Arg Ala Leu Leu Phe Leu Leu Leu Gly Leu Ile Trp Ser
35 40 45
Val Ala Cys Tyr Gly Ser Leu Ala Leu Gly Glu Ser Xaa Phe Leu Glu
50 55 60
Glu Ile Gly Ala Glu Lys Leu Pro Phe Ala Tyr Leu Gly Ala Ser Phe
65 70 75 80
Phe Leu Cys Phe Ile Ser Cys Leu Ile Leu Tyr Asn Leu Ser Arg Lys
85 90 95
Arg Val Ser Pro Lys Ala Leu Phe Leu Ser Phe Ile Ser Cys Val Leu
100 105 110
Ile Cys Asn Leu Tyr Leu Phe Trp His Leu Ala Ile His Lys Gly Val
115 120 125
Ser Gly Thr Pro Thr Phe Leu Tyr Arg Ile Leu Ile Trp Gly Leu Thr
130 135 140
Ile Leu Cys Tyr Ala Asn Phe Trp Gly Phe Ile Asp Gln Phe Phe Asn
145 150 155 160
Ile Gln Asp Ala Lys Arg His Phe Cys Ile Phe Asn Ala Ile Thr Phe
165 170 175
Cys Gly Asp Phe Leu Gly Ala Arg Ile Val Asn Gln Ile Gln Tyr Leu
180 185 190
Gly Ala Glu Leu Ile Leu Leu Ala Phe Ile Val Val Ile Thr Phe Ile
195 200 205
Phe Pro Leu Val His Tyr Ile Ser Ser Ser Leu Lys Glu Leu Ser Glu
210 215 220
Asp His Asp Leu Phe Leu Asp Thr Gly Tyr Pro Pro Ser Thr Lys Gln
225 230 235 240
Thr Leu Lys Leu Cys Leu Lys Asp Lys Tyr Thr Phe Tyr Leu Val Ser
245 250 255
Phe Tyr Phe Leu Met Gln Leu Leu Val Val Phe Thr Glu Phe Asn Tyr
260 265 270
Leu Lys Ile Phe Asp Ala Gln Phe Gly Asn Ala Glu Thr Cys Glu Leu
275 280 285
Thr Glu Asn Phe Thr Lys Tyr Ser Ser Trp Ile Ser Leu Gly Asn Met
290 295 300
Phe Phe Ala Leu Phe Ala Tyr Ser Arg Val Ile Thr Arg Phe Gly Ile
305 310 315 320
Asn Asn Ile Ile Leu Phe Ala Pro Ile Cys Phe Phe Ser Leu Phe Cys
325 330 335
Cys Trp Ser Ile Lys Thr Ser Val Phe Ile Ala Thr Met Gly Met Ile
340 345 350
Ala Arg Glu Gly Leu Ala Tyr Ala Leu Asp Asp Asn Asn Leu Gln Leu
355 360 365
Leu Ile Tyr Gly Ile Pro Asn Lys Ile Arg Asn Gln Val Arg Ile Ala
370 375 380
Ile Glu Ser Phe Val Glu Leu Arg Gly Cys Ser Ser Ala His Tyr Tyr
385 390 395 400
Val Tyr Ser Ser Arg Thr Asn Thr Tyr Ser Val Leu Ser Phe Pro Pro
405 410 415

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Cys Val Phe Phe
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<212>PRT
<213>Chlamydia trachomatis
<400>212
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             20                  25                  30
Pro Pro Gln Ser Pro Ser Ala Val Gly Ser Leu Glu Gly Ala Asn Phe
         35                  40                  45
Ser Thr Trp Gly Pro Gly Pro Phe Phe Thr Val Pro Val Tyr Pro Gln
     50                  55                  60
Gln Leu Ala Ala Met Gln Asn Asn Leu Phe Thr Leu Gln Thr Glu Val
 65                  70                  75                  80
Ser Ala Leu Lys Lys Lys Leu Val Gln Ser Ser Gln Thr Arg Gly Ser
                 85                  90                  95
Leu Gly Leu Gly Pro Gln Phe Leu Ala Ala Cys Leu Val Ala Ala Thr
            100                 105                 110
Ile Leu Ala Val Ala Val Ile Val Leu Ala Ser Leu Gly Leu Gly Gly
        115                 120                 125
Val Leu Pro Phe Val Leu Val Cys Leu Ala Gly Ser Thr Asn Ala Ile
    130                 135                 140
Trp Ala Ile Val Ser Ala Ser Ile Thr Thr Leu Ile Cys Cys Val Ser
145                 150                 155                 160
Ile Ala Cys Ile Phe Leu Ala Lys Cys Asp Lys Gly Ser Asp Pro Gln
                165                 170                 175
Thr Leu Tyr Val Ser
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<213>Chlamydia trachomatis
<400>213
Phe Thr Glu Gly Asn Met Val His Ser Val Tyr Asn Ser Leu Ala Pro
  1               5                  10                  15
Glu Gly Phe Ser Gln Val Ser Ile Gln Pro Ser Gln Ile Pro Thr Ser
             20                  25                  30
Lys Lys Val Met Ile Ala Ile Met Thr Leu Phe Ala Leu Thr Ala Ile
         35                  40                  45
Ala Ala Ile Val Leu Ser Ile Val Thr Val Cys Gly Gly Phe Pro Phe
     50                  55                  60
Leu Leu Ala Ala Leu Asn Thr Val Thr Ile Gly Ala Cys Val Ser Leu
 65                  70                  75                  80
Pro Ile Phe Thr Cys Ile Ala Thr Thr Leu Leu Leu Leu Cys Leu Arg
                 85                  90                  95
Asn Ile Glu Leu Leu Gly Gln Thr Ala Ser Ile Asp Pro Leu His Ser
            100                 105                 110
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        115                 120                 125
Met Ser
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<210>214
<211>490
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<213>Chlamydia trachomatis
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  1               5                  10                  15
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                20                  25                  30
Arg Met Val Ala Gln Asn Gly Gly Gly Thr Phe Ile Leu Leu Trp Leu
            35                  40                  45
Leu Phe Leu Ile Ile Trp Ser Ile Pro Leu Ile Ile Val Glu Leu Ser
        50                  55                  60
Ile Gly Lys Leu Thr Arg Lys Ala Pro Ile Gly Ala Leu Ile Arg Thr
65                  70                  75                  80
Ala Gly Pro Lys Ser Ala Trp Leu Gly Gly Phe Ile Val Leu Val Ala
                85                  90                  95
Thr Cys Ile Leu Gly Tyr Tyr Ser Asn Ile Val Gly Trp Gly Phe Ser
            100                 105                 110
Tyr Phe Phe Tyr Ser Leu Ser Gly Lys Ile Val Pro Gly Asn His Phe
        115                 120                 125
Pro Gln Leu Trp Ala His His Cys Gln Ser Trp Met Pro Leu Ser Cys
    130                 135                 140
His Cys Leu Ala Leu Phe Leu Ala Tyr Cys Ile Ile Arg Lys Gly Ile
145                 150                 155                 160
Val Asn Gly Ile Glu Thr Cys Asn Lys Ile Leu Ile Pro Phe Phe Phe
                165                 170                 175
Ile Cys Ala Leu Val Leu Leu Ala Arg Ala Val Ser Leu Pro His Ala
            180                 185                 190
Trp Glu Gly Ile Arg Leu Leu Phe Val Phe Asn Lys Ala Ser Leu Cys
        195                 200                 205
Asp Tyr Lys Val Trp Ile Glu Ala Leu Thr Gln Asn Ala Trp Asp Thr
    210                 215                 220
Gly Ala Gly Trp Gly Leu Leu Leu Val Tyr Ala Gly Phe Ala Ser Lys
225                 230                 235                 240
Gln Thr Ser Leu Val Thr Asn Gly Ala Ile Thr Ala Ile Thr Asn Asn
                245                 250                 255
Phe Ile Ser Phe Leu Met Ala Val Ile Val Phe Ser Ala Cys Ala Ser
            260                 265                 270
Leu Asp Ser Thr Glu Met Leu Gly Leu Arg Glu Gly Val Gly Ala Ser
        275                 280                 285
Asn Ile Gly Met Ala Phe Ile Tyr Leu Pro Glu Leu Phe Thr Arg Leu
    290                 295                 300
Pro His Ala His Ile Leu Ser Thr Phe Phe Ser Ala Ile Phe Phe Leu
305                 310                 315                 320
Ala Phe Ser Met Ala Ala Leu Ser Ser Met Ile Ser Met Leu Phe Leu
                325                 330                 335
Leu Ser Gln Thr Leu Thr Glu Phe Gly Ile Lys Lys His Ile Ala Glu
            340                 345                 350
Ser Ser Ala Thr Ile Ala Ala Phe Leu Ile Gly Val Pro Ser Ala Leu
        355                 360                 365
Asn Leu Gln Phe Phe Asp Asn Gln Asp Ile Val Trp Gly Ile Ala Leu
    370                 375                 380
Ile Leu Asn Gly Met Ile Phe Ile Tyr Ser Ala Leu Ser Tyr Gly Ile
385                 390                 395                 400
Lys Arg Leu Arg Gln Asp Val Ile Asn Ser Val Pro Gly Asp Tyr Lys
                405                 410                 415
Leu Lys Thr Tyr Phe Asp Met Leu Val Lys Phe Leu Leu Pro Leu Glu
            420                 425                 430
Gly Val Leu Leu Leu Ala Trp Tyr Phe Tyr Glu Gly Ala Met Leu Pro
        435                 440                 445
Gln Ala Tyr Trp Trp Asn Pro Phe Val Ser Tyr Asn Ile Ser Ser Leu
    450                 455                 460
Leu Met Gln Trp Gly Leu Gly Gly Gly Val Leu Phe Leu Leu Asn Arg
465                 470                 475                 480
Lys Leu Tyr Thr Lys Phe Tyr Leu Asn Asn
                485                 490
```

<210>215

<211>342
<212>PRT
<213>Chlamydia trachomatis
<400>215

```
Lys Ser Met Val Ser Val Val Arg Ser Ser Leu Tyr Tyr Thr Leu Leu
  1               5                  10                  15
Thr Thr Leu Ile Ser Ala Ala Ile Ala Leu Val Leu Phe Ile Phe Ile
            20                  25                  30
Lys Pro Ser Val Pro Leu Ser Gly Phe Asn Ala Ala Thr Glu Thr Asn
        35                  40                  45
Ala Thr Gly Tyr Leu Ser Val Leu Ser Lys Thr Ile Pro Gly Asn Ile
    50                  55                  60
Leu Glu Pro Phe Leu Glu Ser Asn Val Ile Ala Ala Ala Phe Leu Ser
65                  70                  75                  80
Ala Leu Leu Ala Thr Phe Ser Leu Ser Leu Pro Glu Asn Glu Arg Leu
                85                  90                  95
Phe Val Arg Asn Ala Phe Asn Thr Leu Phe Ser Leu Leu Leu Ser Ile
            100                 105                 110
Ser Lys Gly Ile Leu Lys Met Leu Pro Leu Ala Thr Phe Ala Phe Ser
        115                 120                 125
Leu Leu Phe Val Arg Glu Met Arg Thr Gly Asn Leu Glu Leu Ser Ser
    130                 135                 140
Phe Gly Glu Tyr Leu Phe Cys Ile Val Thr Ala Asn Cys Leu Gln Gly
145                 150                 155                 160
Phe Leu Val Leu Pro Leu Leu Leu Lys Met Lys Gly Ile Ser Pro Leu
                165                 170                 175
Arg Thr Phe Lys Leu Met Ser Arg Pro Leu Ala Thr Ala Phe Phe Ser
            180                 185                 190
Lys Ser Ser Ala Val Thr Leu Pro Leu Thr Met Glu Val Ala Glu Glu
        195                 200                 205
Asn Leu His Ile Arg Pro Thr Ile Ser Arg Phe Val Phe Pro Leu Cys
    210                 215                 220
Ser Val Ile Asn Met Asn Ala Cys Ala Ala Phe Ile Leu Thr Thr Val
225                 230                 235                 240
Leu Phe Val Gly Val Ser Asn Gly Ile Val Phe Ser Pro Leu Ser Leu
                245                 250                 255
Ile Ser Trp Val Phe Ile Ala Thr Leu Ala Ala Val Gly Asn Ala Gly
            260                 265                 270
Val Pro Met Gly Cys Tyr Phe Leu Thr Ser Ser Leu Leu Ala Ser Met
        275                 280                 285
Asn Val Pro Leu Gly Leu Leu Gly Leu Ile Leu Pro Ala Tyr Ala Leu
    290                 295                 300
Leu Asp Met Leu Glu Thr Leu Ile Asn Val Trp Ser Asp Cys Cys Ile
305                 310                 315                 320
Val Ser Val Ile Asn Lys Lys Phe Ser Glu Thr Glu Asp Leu Pro Pro
                325                 330                 335
Cys Ser Tyr Thr Asn Glu
            340
```

<210>216
<211>118
<212>PRT
<213>Chlamydia trachomatis
<400>216

```
His Pro Ile Gly Thr Pro Ala Phe Pro Thr Ala Ala Lys Val Ala Ile
  1               5                  10                  15
Lys Thr Gln Leu Ile Ser Asp Lys Gly Glu Lys Thr Ile Pro Leu Glu
            20                  25                  30
Thr Pro Thr Asn Ser Thr Val Val Arg Met Asn Ala Ala Gln Ala Phe
        35                  40                  45
Ile Leu Ile Thr Glu His Arg Gly Lys Thr Lys Arg Glu Ile Val Gly
    50                  55                  60
```

```
Arg Met Cys Lys Phe Ser Ser Ala Thr Ser Met Val Lys Gly Arg Val
 65                  70                  75                  80
Thr Ala Glu Asp Leu Glu Lys Asn Ala Val Ala Arg Gly Arg Asp Met
                85                  90                  95
Ser Leu Asn Val Arg Lys Gly Glu Ile Pro Phe Ile Leu Arg Arg Arg
            100                 105                 110
Gly Arg Thr Arg Asn Pro
        115
<210>217
<211>113
<212>PRT
<213>Chlamydia trachomatis
<400>217
Met Ser Cys Ser Asn Val Asn Ser Gly Ala Pro Ala Thr Leu Phe Ala
  1               5                  10                  15
Lys Gly Ala Ala Ala Ile Ser Ser Arg Val Asp Thr Met Arg Gln Met
            20                  25                  30
Cys Ser Ala Arg Val Gly Ser Lys Thr Cys Gly Ile Ala Leu Ile Ile
        35                  40                  45
Ile Gly Leu Leu Val Ala Thr Ala Gly Val Val Ile Ala Ala Val Gly
    50                  55                  60
Ile Gly Thr Pro Ala Ser Leu Ala Ala Gly Met Ile Leu Val Met Val
 65                  70                  75                  80
Gly Ser Leu Leu Leu Gly Leu Gly Leu Ala Arg Ala Arg Ser Arg Arg
                85                  90                  95
Val Glu Ile Glu Arg Gln Leu Glu Val Val Ser Met Gln Ile Glu Glu
            100                 105                 110
Leu

<210>218
<211>105
<212>PRT
<213>Chlamydia trachomatis
<400>218
Arg Ser Phe Glu Glu Glu Tyr Lys Ala Leu Ser Glu Val Tyr Arg Ala
  1               5                  10                  15
Asn Leu Glu Ala Arg Arg Ala Val Ser Lys Tyr Cys Gln Glu Leu Glu
            20                  25                  30
Glu Lys Ile Leu Asp Leu Cys Lys Arg His Ala Ala Thr Ile Cys Ser
        35                  40                  45
Ile Glu Glu Asp Ala Lys Gln Glu Ile Arg His Gln Thr Glu Arg Phe
    50                  55                  60
Lys Gln Arg Leu Gln Gln Asn Gln Asn Thr Cys Ser Gln Ile Thr Ala
 65                  70                  75                  80
Glu Leu Cys Lys Leu Arg Ser Glu Asn Lys Ala Leu Ser Glu Arg Leu
                85                  90                  95
Gln Val Gln Ala Ser Arg Arg Lys Lys
            100                 105

<210>219
<211>190
<212>PRT
<213>Chlamydia trachomatis
<400>219
Arg Arg Arg Phe Phe Phe Thr Val Ala Asn Ser Phe Leu Arg Arg Asp
  1               5                  10                  15
Lys Ile Tyr Phe Val Phe Asn Lys Arg Glu Tyr Leu Phe Gln Asn Phe
            20                  25                  30
Gly Tyr Ser Phe Ser Tyr Arg Arg Arg Phe Ser Cys Cys Arg Trp Gly
        35                  40                  45
Ile Ser Phe Gly Phe Val Arg Tyr Asn Val Ile Phe Thr Val Ile Gly
    50                  55                  60
```

```
Ile Pro Ala Leu Ile Ile Gly Ser Ala Cys Val Gly Ala Gly Ile Ser
 65                  70                  75                  80
Arg Leu Met Tyr Arg Ser Ser Tyr Ala Ser Leu Glu Ala Lys Asn Val
                85                  90                  95
Leu Ala Glu Gln Arg Leu Arg Asn Leu Ser Glu Glu Lys Asp Ala Leu
            100                 105                 110
Ala Ser Val Ser Phe Ile Asn Lys Met Phe Leu Arg Gly Leu Thr Asp
        115                 120                 125
Asp Leu Gln Ala Leu Glu Ala Lys Val Met Glu Phe Glu Ile Asp Cys
    130                 135                 140
Leu Asp Arg Leu Glu Lys Asn Glu Gln Ala Leu Leu Ser Asp Val Arg
145                 150                 155                 160
Leu Val Leu Ser Ser Tyr Thr Arg Trp Leu Asp Ser Ala Glu Lys Glu
                165                 170                 175
Lys Ala Ala Leu Lys Ala Ser Ile Asp Ala Asn Gln Ala Ser
            180                 185                 190
<210>220
<211>180
<212>PRT
<213>Chlamydia trachomatis
<400>220
Thr Glu Pro Cys Phe Arg Ile Leu Phe Tyr Thr Leu Val Ser Arg Asp
  1                 5                  10                  15
Glu Arg Arg Val Lys Val Phe Tyr Val Lys Asn Ile Cys Val Phe Leu
            20                  25                  30
Pro Ser Arg Val Leu Ser Arg Pro Phe Phe Gly Pro Glu Ser Thr Met
        35                  40                  45
Ser Tyr Leu Phe Cys Ser Ser Cys Ala Pro Thr Leu Glu Ser Pro Ala
    50                  55                  60
Glu Leu Cys Leu Tyr Lys Thr His Ile Tyr Cys Lys Arg Arg Gly Asn
 65                  70                  75                  80
Ile Glu Phe Ala Val Ser Leu Gly Ile Phe Ala Ile Leu Ser Cys Val
                85                  90                  95
Ala Leu Leu Cys Leu Leu Cys Arg Gly Ser Ser Leu Val Phe Ala Gly
            100                 105                 110
Leu Gly Ile Gly Ala Ile Met Ile Gly Ser Val Ala Leu Gly Val Gly
        115                 120                 125
Leu Thr Phe Leu Tyr Trp Ser Cys Ser Arg Gly Leu Gln Asn Arg Ile
    130                 135                 140
Arg Thr Asn Ile Leu Ala Ser Ser Asp Ser Ser Ser Leu Ser Ser Ser
145                 150                 155                 160
Lys Ser Asp Phe Ser Leu Glu Phe Glu Leu Asn Glu Ala Asp Val Thr
                165                 170                 175
Ile Ser Val Ser
            180
<210>221
<211>192
<212>PRT
<213>Chlamydia trachomatis
<400>221
Leu Pro Leu Lys Tyr Ile Lys Ile Phe Thr Leu Ile Ser Phe Pro Val
  1                 5                  10                  15
Ala Cys Arg Pro Phe Leu Arg Asn Arg Gly Ala Met Phe Asn Ile Ser
            20                  25                  30
Phe Cys Cys Asn Ser Ser Lys Pro Leu Arg Ala Asp His Thr Glu Thr
        35                  40                  45
Ile Gly Ala Gln Thr Thr Thr Ser Arg Lys Glu Gln Leu Leu Ala Ile
    50                  55                  60
Gly Ala Leu Val Leu Gly Val Leu Ala Val Leu Gly Gly Ala Leu Leu
 65                  70                  75                  80
Leu Leu Phe Ser Gly Ser Val Leu Ser Leu Phe Ala Pro Ile Leu Ser
```

```
                85                  90                  95
Leu Leu Ala Met Thr Leu Gly Ser Ala Cys Ile Gly Gly Ser Leu Val
            100                 105                 110
Tyr Met Tyr Gly Phe Ser Leu Lys Pro Thr Arg Leu Pro Ser Glu Ser
        115                 120                 125
Ser Gly Leu Ala Pro Glu Ala Val Thr Pro Gly Leu Val Leu Ser Tyr
    130                 135                 140
Gln Glu Leu Leu Tyr Glu Ala Glu Glu Asp Leu Lys Glu Val Glu Gly
145                 150                 155                 160
Leu Leu Ala Gln Lys Ser Lys Asp Leu Glu Leu Ala Gln Lys Lys Ile
                165                 170                 175
Glu Gln Leu Gln Ser Gly Leu Lys Cys Val Leu Glu Glu Ser Leu Arg
            180                 185                 190
<210>222
<211>135
<212>PRT
<213>Chlamydia trachomatis
<400>222
Gly Ile Val Val Gln Gln Lys Leu Arg Tyr Ser Glu Asn Val Ala Asn
  1               5                  10                  15
Asn Ser Phe Ile His Arg Ser Lys Arg Tyr Gln Leu Phe Val Val Val
            20                  25                  30
Leu Thr Ser Leu Leu Ala Ala Leu Gly Gly Val Phe Leu Cys Leu Gly
        35                  40                  45
Gly Val Tyr Ser Ser Leu Val Leu Gly Val Val Gly Gly Ala Ala Ile
    50                  55                  60
Ile Gly Ser Cys Ile Gly Ala Phe Gly Leu Val Ser Tyr Leu Leu Ser
65                  70                  75                  80
Val Ile Arg Asn Ser Asp Gln Leu Leu Gln Glu Ala Lys Glu Ser Asp
                85                  90                  95
Arg Lys Ile Ser Ser His Tyr Arg Val Leu Glu Thr Gln Lys Asn Arg
            100                 105                 110
Glu Ile Gly Leu Leu Glu Glu Arg Val Asn Met Leu Asp Gly Phe Tyr
        115                 120                 125
Ala Lys Phe His Gly Trp Asp
    130                 135
<210>223
<211>164
<212>PRT
<213>Chlamydia trachomatis
<400>223
Arg Lys Ala Ser Leu Leu Ile Thr Asp Leu Phe Tyr Leu Lys Trp Asp
  1               5                  10                  15
Ala Met Ser Phe Val Gly Asp Ser Val Pro Leu Arg Ser Tyr Met Pro
            20                  25                  30
Glu Ala Pro Leu Val Asp Ser Ala Ser Lys Ala Arg Val Ser Cys Cys
        35                  40                  45
Ser Glu Arg Ile Ala Val Leu Ala Leu Gly Ile Leu Ser Ile Leu Phe
    50                  55                  60
Ile Val Thr Gly Ala Ala Leu Phe Ile Gly Ala Gly Trp Thr Thr Leu
65                  70                  75                  80
Pro Met Ile Asn Val Val Val Thr Leu Val Val Phe Gly Ser Val Met
                85                  90                  95
Leu Gly Ala Val Leu Thr Arg Ile Ser Gly Tyr Gly Gly Glu Pro Lys
            100                 105                 110
Lys Val Ser Leu Asp Arg Phe Val Leu Glu Asn Glu Arg Gln Gly Phe
        115                 120                 125
Leu Asp Lys Gln Arg Leu Ala Asp Ile Ser Lys Glu Glu Ile Ala Leu
    130                 135                 140
Ala Lys Gln Gln Ile Glu Glu Glu Lys Glu Ala Ile Leu His Ser Ile
145                 150                 155                 160
```

Phe Pro Asn Asp

<210>224
<211>273
<212>PRT
<213>Chlamydia trachomatis
<400>224

```
Arg Lys Gly Gly Lys Met Val Ser Leu Ala Leu Gly Thr Ser Asn Arg
  1               5                  10                  15
Val Glu Ala Asn Asn Gly Ile Asn Asp Leu Ser Pro Ala Pro Glu Ala
            20                  25                  30
Lys Lys Thr Gly Phe Gly Leu Cys Tyr Lys Ile Ser Ala Val Ala Ala
        35                  40                  45
Leu Val Leu Gly Leu Leu Ala Ala Ala Gly Gly Ala Val Val Leu Ala
    50                  55                  60
Leu Phe Cys Thr Phe Thr Pro Pro Leu Phe Phe Tyr Ala Gly Val Ala
65                  70                  75                  80
Leu Val Ala Leu Gly Ala Val Ile Leu Gly Val Gly Val Ser Asn Thr
                85                  90                  95
Cys Ser Cys Cys Leu Arg Ser Lys Arg Ile Glu Ala Arg Glu Gln Leu
            100                 105                 110
Leu Leu Gln Gln Lys Glu Glu Ile Ser Gln Leu Glu Gln Gln Leu Ala
        115                 120                 125
Lys Ala Leu Gly Glu Leu Asp Thr Lys Cys Ala Ser Leu Leu Glu Arg
    130                 135                 140
Arg Asp Leu Arg Glu Asn Leu Lys Ala Trp Gln Ala Tyr Cys Leu Asn
145                 150                 155                 160
Leu Glu Glu Asp Val Arg Asp Leu Leu Lys Lys Leu Glu Gly Tyr Gln
                165                 170                 175
Glu Arg Leu Lys Val Leu Pro Ala Lys Glu Lys Gln Ile Glu Glu Leu
            180                 185                 190
Lys Ala Met Leu Glu His Tyr Ser Arg Ile Cys Tyr Glu Arg Gly Asp
        195                 200                 205
Leu Ile Arg Met Leu Lys Thr Ala Asn Lys Lys Leu Ser Lys Glu Cys
    210                 215                 220
Glu Lys Leu Leu Leu Asn Tyr Lys Ala His Leu Asp Val Cys Leu Gly
225                 230                 235                 240
Glu Lys Val Leu Ala Lys Ser Val Asn Leu Ile Asp Leu Asp Leu Lys
                245                 250                 255
Ser Asp Ser Ser Asp Gly Asp Asp Tyr Asp Phe Asn Tyr Gly Ser Arg
            260                 265                 270
Val
```

<210>225
<211>132
<212>PRT
<213>Chlamydia trachomatis
<400>225

```
Leu Arg Ser Asp Met Arg Cys Cys Cys Val Arg Thr Asn Cys Glu Glu
  1               5                  10                  15
Val Arg Ser Ser Ser Thr Gly Asp Gln Val Val Ser Ala Val Lys Glu
            20                  25                  30
Arg Lys Cys Asp Ser Ser Leu Arg Arg Lys Ile Ala Ser Val Ala Phe
        35                  40                  45
Thr Leu Ile Gly Ala Leu Leu Leu Gly Ile Gly Met Val Leu Ser Phe
    50                  55                  60
Ala Leu Leu Gly Ser Ser Ala Gly Leu Ile Gly Val Gly Val Leu Ser
65                  70                  75                  80
Ala Leu Gly Ala Val Cys Leu Ser Leu Gly Leu Tyr Lys Leu Phe Leu
                85                  90                  95
Arg Met Lys Arg Val Ser Leu Asp Lys Ala Glu Gln Lys Met Leu Glu
```

```
            100                 105                 110
Asp Gln Val Glu Leu Leu Arg Gln Glu Asn Gln Glu Leu Lys Ala Ile
        115                 120                 125
Ser Val Phe His
    130
<210>226
<211>298
<212>PRT
<213>Chlamydia trachomatis
<400>226
Met Ala His Thr Ile Arg Phe Thr Lys Phe Ser Phe Pro Leu Tyr Phe
  1               5                  10                  15
Ser Lys Thr Leu Ser Trp Phe Ile Ile Gly Gly Phe Leu Ala Ala Cys
             20                  25                  30
Val Val His Met Ile Leu Ala Pro Asn Asp Leu Ile Asp Gly Gly Ile
         35                  40                  45
Val Gly Leu Ser Met Ile Ala Ala His Ser Phe Gly His Gln Phe Leu
     50                  55                  60
Pro Val Phe Leu Val Leu Phe Asn Leu Pro Phe Ile Ile Leu Ala Tyr
 65                  70                  75                  80
Lys Arg Ile Gly Lys Tyr Phe Val Val Gln Met Ile Thr Ala Val Ile
                 85                  90                  95
Ile Phe Ser Cys Trp Leu Trp Leu Ile Glu Val Leu Pro Glu Trp Leu
            100                 105                 110
Gly Ile Gln Pro Phe Ile Phe Asp Gly Ser Glu Ile Glu Thr Ile Val
        115                 120                 125
Leu Gly Gly Val Val Leu Gly Ala Gly Gly Gly Leu Ile Ile Arg His
    130                 135                 140
Gly Gly Ala Thr Asp Gly Thr Glu Ile Leu Gly Ile Ile Val Asn Lys
145                 150                 155                 160
Lys Arg Gly Tyr Thr Val Gly Gln Val Ile Leu Phe Val Asn Phe Phe
                165                 170                 175
Ile Phe Ser Leu Gly Gly Ile Val Tyr Arg Asn Trp His Thr Ala Phe
            180                 185                 190
Met Ser Leu Leu Thr Tyr Ala Val Ala Ile Lys Val Met Asp Met Val
        195                 200                 205
Ile Leu Gly Phe Glu Asp Thr Lys Ser Val Thr Ile Ile Thr Ser Ser
    210                 215                 220
Pro Arg Lys Leu Gly Asn Ile Leu Met Glu Thr Leu Gly Val Gly Leu
225                 230                 235                 240
Thr Tyr Leu His Ala Glu Gly Gly Phe Ser Gly Glu Pro Arg Asn Leu
                245                 250                 255
Leu Tyr Ile Val Val Glu Arg Leu Gln Leu Ser Gln Leu Lys Glu Ile
            260                 265                 270
Val His Arg Glu Asp Pro Ser Ala Phe Ile Ala Ile Glu Asn Leu His
        275                 280                 285
Glu Val Ile Asn Glu Lys Arg Thr Ser His
    290                 295
<210>227
<211>192
<212>PRT
<213>Chlamydia trachomatis
<400>227
Met Lys Arg Tyr Val Val Gly Ile Ser Gly Ala Ser Gly Ile Xaa Leu
  1               5                  10                  15
Ala Val Thr Leu Val Ser Glu Leu Ala Arg Leu Gly His His Ile Asp
             20                  25                  30
Val Ile Ile Ser Pro Ser Ala Gln Lys Thr Leu Tyr Tyr Glu Leu Asp
         35                  40                  45
Thr Lys Ser Phe Leu Ser Thr Ile Pro Gln Asn Phe His Asn Gln Ile
     50                  55                  60
```

```
Val Leu His His Ile Ser Ser Ile Glu Ser Ser Val Ser Ser Gly Ser
 65                  70                  75                  80
Asn Thr Val Asp Ala Thr Ile Ile Val Pro Cys Ser Val Ala Thr Val
                85                  90                  95
Ala Ala Ile Ser Cys Gly Leu Ala Asp Asn Leu Leu Arg Arg Val Ala
            100                 105                 110
Asp Val Ala Leu Lys Glu Lys Arg Pro Leu Ile Leu Val Pro Arg Glu
        115                 120                 125
Ala Pro Leu Ser Ala Ile His Leu Glu Asn Leu Leu Lys Leu Ala Gln
    130                 135                 140
Asn Gly Ala Val Ile Leu Pro Pro Met Pro Ile Trp Tyr Phe Lys Pro
145                 150                 155                 160
Gln Thr Ala Glu Asp Ile Ser Asn Asp Ile Val Gly Lys Ile Leu Ala
                165                 170                 175
Ile Leu Gln Leu Asp Ser Pro Leu Ile Lys Arg Trp Glu Asn Pro Arg
            180                 185                 190
<210>228
<211>72
<212>PRT
<213>Chlamydia trachomatis
<400>228
Lys Phe Ser Lys Cys Ile Ala Asp Arg Gly Ala Ser Arg Gly Thr Arg
  1                 5                  10                  15
Ile Arg Gly Leu Phe Ser Phe Arg Ala Thr Ser Ala Thr Leu Leu Lys
            20                  25                  30
Arg Leu Ser Ala Lys Pro His Glu Ile Ala Ala Thr Val Ala Thr Leu
        35                  40                  45
Gln Gly Thr Ile Ile Val Ala Ser Thr Val Phe Glu Pro Asp Asp Thr
    50                  55                  60
Glu Leu Ser Ile Glu Asp Ile Trp
 65                  70
<210>229
<211>302
<212>PRT
<213>Chlamydia trachomatis
<400>229
Met Ser Arg Ile Val Leu Ile Gln Gln Leu Ile Lys Cys Lys Tyr Ala
  1                 5                  10                  15
Leu Phe Ala Ala Leu Phe Leu Ala Ser Ser Thr Leu Phe Cys Phe Ser
            20                  25                  30
Leu Pro Cys Thr Pro Phe Ser Leu Phe Ser Leu Gly Ser Ile Lys Thr
        35                  40                  45
Ile Ser Leu Gly Gly Ser Ala Phe Phe Ile Ala Arg Ala Leu Gly Met
    50                  55                  60
Ile Val Asn Gln Val Val Asp Cys Ala Ile Asp Lys Arg Asn Pro Arg
 65                  70                  75                  80
Thr Gln Ser Arg Val Leu Pro Ala Glu Leu Leu Ser Ile Lys His Ser
                85                  90                  95
Met Leu Leu Leu Thr Leu Cys Leu Ile Leu Phe Leu Ser Thr Cys Trp
            100                 105                 110
Leu Phe Asn Pro Leu Cys Phe Ser Leu Ala Val Leu Ser Thr Leu Ile
        115                 120                 125
Met Ile Ile Tyr Pro Tyr Thr Lys Arg Phe Thr Phe Leu Cys His Trp
    130                 135                 140
Ile Leu Gly Leu Val Tyr Tyr Leu Ala Ile Leu Met Asn Phe Phe Ala
145                 150                 155                 160
Ile Ile Glu Thr Pro Ser Phe Ser Leu Phe Cys Met Ser Ser Leu Leu
                165                 170                 175
Gly Ile Ser Phe Gly Met Ile Ile Ala Ala Asn Asp Ile Ile Tyr Ala
            180                 185                 190
Leu Gln Asp Val Glu Phe Asp Gln Lys Glu Gly Leu Phe Ser Ile Pro
```

Substitute Sheet (Rule 26)

```
        195                 200                 205
Ala Arg Phe Gly Thr Lys Gln Ala Ile Thr Ile Ala Ser Ala Asn Leu
    210                 215                 220
Ile Xaa Ser Ala Ile Ala Tyr Leu Leu Ile Gly Tyr Phe Val Pro Asn
225                 230                 235                 240
Lys Thr Ile Phe Tyr Leu Cys Ser Leu Val Pro Leu Thr Gly Ile Leu
                245                 250                 255
Arg Thr Ile Lys His Tyr Ser Leu Ile Asp Pro Arg Ala Lys Ser Thr
            260                 265                 270
Leu Gln Gln Asn Phe Phe Leu Gly Asn Leu Ser Leu Gly Ile Ala Phe
        275                 280                 285
Phe Ala Asn Met Ile Gly Leu Phe Leu Leu Arg Gly Ile Leu
    290                 295                 300
<210>230
<211>177
<212>PRT
<213>Chlamydia trachomatis
<400>230
Trp Glu Lys Phe Arg Thr Leu Pro Leu Leu Leu Cys His Cys Arg Ser
  1                 5                  10                  15
Tyr Lys Arg Ser Glu Ser Pro Trp Asn Ser Cys Asp Ser Leu Ser Gln
            20                  25                  30
Ser Glu Asn Ile Ala Phe Phe Gln Glu Ala His Met Ala Ser Leu Ile
        35                  40                  45
Arg Ser Leu Cys Glu Phe Thr Val Ala Tyr Lys His Thr Asp Pro Leu
    50                  55                  60
Gly Leu Asn Val Asn Phe Pro Ala Ser Ala Asp Asp Ser Pro Trp Lys
65                  70                  75                  80
Gly Ile Arg Phe Thr Leu Ser Gly Asn Glu Phe Leu Phe Gly Ile Pro
                85                  90                  95
Arg Leu Val Arg Thr Glu Gly Asn Arg Arg Tyr Tyr Thr Leu Tyr Asp
            100                 105                 110
Met Arg Asp Lys Val Ser Glu Glu Phe Ser Glu Glu Tyr Leu Ala Leu
        115                 120                 125
Ala Asn Asn Tyr Ile Ser Ala Ala Pro Leu Val Ser Lys Asn Thr Pro
    130                 135                 140
Arg Ala Thr Leu Ser Glu Glu Glu Leu Ala Phe Leu Lys Asp Ser Phe
145                 150                 155                 160
Glu Gln Ser Val Leu Trp Lys Ala Ser Leu Asn Leu Glu Glu Asp Leu
                165                 170                 175
Ala

<210>231
<211>162
<212>PRT
<213>Chlamydia trachomatis
<400>231
Met Arg Asn Glu Lys Tyr Lys Arg Gly Leu Met Thr Glu Thr Arg Arg
  1                 5                  10                  15
Leu Arg Ile Leu Ile Thr Asn Asp Asp Gly Ile Lys Ala Lys Gly Ile
            20                  25                  30
Ser Leu Leu Ile Ser Leu Leu Arg Glu Ala Asp Phe Ala Asp Leu Tyr
        35                  40                  45
Val Val Ala Pro Leu Glu Glu Gln Ser Gly Arg Ser Met Ala Phe Ser
    50                  55                  60
Leu Val Glu Pro Thr Ala Leu Glu Pro Phe Asp Tyr Pro Gln Arg Val
65                  70                  75                  80
Gln Glu Ala Trp Ala Val Thr Gly Thr Pro Val Asp Cys Val Lys Leu
                85                  90                  95
Ala Ile Gly Glu Leu Phe Lys Glu Asn Ala Leu Asp Leu Ile Leu Ser
            100                 105                 110
```

```
Gly Ile Asn Asn Gly Lys Asn Ser Gly Arg Cys Leu Tyr Tyr Ser Ala
        115                 120                 125
Thr Val Gly Ala Ile Arg Glu Ala Asn Leu His Gly Ile Pro Ala Ile
    130                 135                 140
Val Phe Leu Lys Val Arg Ile Ser Leu Phe Ser Lys Lys Leu Ile Trp
145                 150                 155                 160
Pro Pro
```

<210>232
<211>236
<212>PRT
<213>Chlamydia trachomatis
<400>232

```
Lys Phe Ser Ala Gln Ser Val Tyr Thr His Ala Met Leu Gln Lys His
  1               5                  10                  15
Thr Arg Ile Ala Val Ala Leu Ser Gly Gly Lys Asp Ser Leu Ser Leu
             20                  25                  30
Leu Leu Met Leu Lys Ala Ile Ser Gly Arg Gly Phe Pro Glu Leu Thr
         35                  40                  45
Ile His Ala Ile His Ile Gly Gly Lys Tyr Ser Cys Gly Ala Ala Val
     50                  55                  60
Ser Gly Asn Tyr Leu Ser Ser Ile Cys Asp Lys Ile Gln Val Pro Leu
 65                  70                  75                  80
Ile Ser Ile Pro Ser Pro Tyr Glu Thr Glu Asn Pro Glu Cys Tyr Thr
                 85                  90                  95
Cys Ser Arg Ile Arg Arg Arg Leu Leu Phe Asp Thr Ala Lys Ala Val
            100                 105                 110
Gly Ala Thr Ala Val Ala Phe Gly His His Arg Asp Asp Val Val Gln
        115                 120                 125
Thr Thr Leu Met Asn Leu Leu His Lys Ala Glu Phe Ala Gly Met Leu
    130                 135                 140
Pro Val Val Asp Met Val Asn Phe Gly Ile Thr Ile Leu Arg Pro Leu
145                 150                 155                 160
Ile Phe Ile Pro Glu Asp Leu Ile Arg Lys Phe Ala Lys Glu Ser Gly
                165                 170                 175
Phe Ala Arg Ile Thr Cys Arg Cys Pro Val Ile Ser Leu Arg Thr Lys
            180                 185                 190
Thr Glu Glu Ala Leu Lys Thr Leu Glu Thr Ile Phe Pro Gln Ala Arg
        195                 200                 205
His Asn Ile Ala Leu Ala Val Arg Glu Thr Gly Leu Ser Lys Ala Asn
    210                 215                 220
Arg Val Glu Gln Tyr Asp Ser Leu Leu Thr Glu Thr
225                 230                 235
```

<210>233
<211>465
<212>PRT
<213>Chlamydia trachomatis
<400>233

```
Ala Ser Ser Gln Ile Phe Tyr Pro Ile Gly Tyr Phe Tyr Cys Arg Asp
  1               5                  10                  15
Val Ile Pro Cys Ser Ser Tyr Gln Phe Thr Lys Pro Ser Phe Asn Ser
             20                  25                  30
Lys Thr Trp Leu Ile Tyr Ser Ile Leu Leu Ser Val Ala Val Ala Cys
         35                  40                  45
Phe Met Ile Pro Tyr Ala Leu Ile Ala Ala Glu Leu Ala Ser Phe Lys
     50                  55                  60
Pro Gln Gly Ile Tyr Val Trp Thr Arg Asp Ala Leu Gly Lys Arg Trp
 65                  70                  75                  80
Gly Phe Phe Ala Ile Trp Met Gln Trp Phe His Asn Met Thr Trp Tyr
                 85                  90                  95
Pro Ala Met Leu Ala Phe Ile Ala Ser Thr Leu Val Tyr Gln Ile Ser
```

```
                100                 105                 110
Pro Asp Leu Ala Asn Asn Arg Leu Tyr Leu Ser Ser Val Ile Leu Leu
            115                 120                 125
Gly Phe Trp Gly Leu Thr Phe Phe Asn Phe Leu Gly Ile Gly Thr Ser
    130                 135                 140
Ala Leu Phe Ser Ser Ile Cys Val Ile Val Gly Thr Leu Ile Pro Gly
145                 150                 155                 160
Ala Ile Leu Val Ala Phe Ala Ala Tyr Trp Ile Gln Gly Gly Asn Pro
                165                 170                 175
Ile Ala Ile Asn Phe Ser Trp Ser Glu Leu Leu Pro Asp Phe Ser Ser
            180                 185                 190
Pro Ser Ser Phe Val Leu Leu Ser Gly Met Leu Leu Ala Leu Cys Gly
        195                 200                 205
Leu Glu Ala Asn Ala Asn Leu Ala Ser Asp Met Glu Asp Pro Lys Arg
    210                 215                 220
Asn Tyr Pro Lys Ala Val Phe Ile Gly Ala Val Ser Thr Leu Ala Ile
225                 230                 235                 240
Leu Val Leu Gly Ser Leu Ala Ile Ala Ile Val Ile Pro Lys Glu Glu
                245                 250                 255
Ile Ser Leu Val Ser Gly Leu Ile Arg Ala Phe Ser Leu Phe Phe Glu
            260                 265                 270
Lys Tyr Asn Leu Ser Trp Met Thr Gly Ile Ile Val Ala Met Thr Ile
        275                 280                 285
Ala Gly Ser Leu Gly Glu Leu Asn Ala Trp Met Phe Ala Gly Thr Lys
    290                 295                 300
Gly Leu Phe Ile Ser Thr Gln Asn Asp Cys Leu Pro Lys Ile Phe Lys
305                 310                 315                 320
Lys Thr Asn Ser Arg Asp Val Pro Thr Asn Leu Met Leu Phe Gln Ala
                325                 330                 335
Ile Val Val Thr Leu Phe Thr Phe Ile Phe Val Tyr Val Asp Ser Ala
            340                 345                 350
Asp Leu Ala Tyr Trp Ile Leu Ser Ala Leu Ser Leu Gln Met Tyr Leu
        355                 360                 365
Val Met Tyr Ile Cys Leu Phe Ile Val Gly Pro Val Leu Arg Ile Lys
    370                 375                 380
Glu Pro Lys Ala Gln Arg Leu Tyr Ser Val Pro Gly Lys Leu Val Gly
385                 390                 395                 400
Met Cys Val Leu Ser Thr Leu Gly Ile Leu Ser Cys Leu Phe Ala Leu
                405                 410                 415
Gly Ile Ser Phe Leu Pro Pro Gln Glu Val Val Ser Phe Ser Thr Met
            420                 425                 430
Gly Gly Asn Phe Gly Tyr Thr Ala Leu Leu Leu Leu Ala Phe Val Ile
        435                 440                 445
Asn Cys Cys Ile Pro Phe Gly Met Tyr Tyr Ser His Lys Lys Leu Ile
    450                 455                 460
Lys
465
<210>234
<211>308
<212>PRT
<213>Chlamydia trachomatis
<400>234
Glu His Leu Arg Met Thr Thr Ile Phe Asp Leu Leu Gly Lys Asp Ala
  1               5                  10                  15
Asp Tyr Leu Leu Asn His Lys Cys Val Ile Lys Lys Glu Ala Leu Thr
            20                  25                  30
Leu Pro Ser Gly Asp Phe Val Ser Arg Val Phe Ala Glu Ser Asp Arg
        35                  40                  45
Asn Asn Arg Val Leu Arg Ser Leu Gln Gln Met Phe Ser Tyr Gly Arg
    50                  55                  60
Leu Gly Gly Thr Gly Tyr Leu Ser Ile Leu Pro Val Asp Gln Gly Val
```

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 65                  70                  75                  80
Glu His Thr Ala Gly Ala Ser Phe Ala Lys Asn Pro Met Tyr Phe Asp
                 85                  90                  95
Pro Glu Asn Ile Val Arg Leu Ala Met Glu Ala Gly Cys Ser Ala Val
            100                 105                 110
Ala Ser Ser Tyr Gly Val Leu Ser Ile Leu Ala Arg Arg Tyr Ala His
        115                 120                 125
Lys Ile Pro Phe Leu Leu Lys Leu Asn His Asn Glu Leu Leu Ser Tyr
    130                 135                 140
Pro Thr Thr Tyr His Gln Ile Phe Phe Ser Gln Val Glu Asp Ala Tyr
145                 150                 155                 160
Asn Met Gly Ala Val Ala Val Gly Ala Thr Ile Tyr Phe Gly Ser Glu
                165                 170                 175
Ser Ser Ser Glu Glu Ile Val Ala Val Ala Glu Ala Phe Ala Arg Ala
            180                 185                 190
Arg Glu Leu Gly Leu Ala Thr Val Leu Trp Cys Tyr Leu Arg Asn Pro
        195                 200                 205
His Phe Val Val Asn Asn Val Asp Tyr His Thr Ala Ala Asp Leu Thr
    210                 215                 220
Gly Gln Ala Asp His Leu Gly Ala Thr Leu Gly Ala Asp Ile Val Lys
225                 230                 235                 240
Gln Lys Leu Pro Thr Leu Gln Gly Gly Phe Lys Thr Ile Asn Phe Ser
                245                 250                 255
Lys Thr Asp Asp Leu Val Tyr Ser Glu Leu Ser Ser Asn His Pro Ile
            260                 265                 270
Asp Leu Cys Arg Tyr Gln Val Leu Asn Ser Tyr Cys Gly Lys Val Gly
        275                 280                 285
Leu Ile Asn Ser Gly Ala Leu Leu Gly Lys Met Thr Leu Leu Lys Gln
    290                 295                 300
Leu Lys Gln Gln
305
<210>235
<211>553
<212>PRT
<213>Chlamydia trachomatis
<400>235
Lys Glu Lys Ile Val Phe Met Arg Thr Asp Ser Pro Leu Asn Pro Pro
  1               5                  10                  15
Asp Ser Thr Arg Gly Val Phe Gln Phe Leu Glu Thr Gln Cys Asp Arg
             20                  25                  30
Ala Met Ala Arg Ser Arg Gln Ser Gln Phe Ile Gly Leu Val Ser Ala
         35                  40                  45
Val Ala Ala Ala Ala Leu Leu Leu Leu Val Val Ala Leu Ser Val
     50                  55                  60
Pro Gly Phe Pro Val Ala Ala Ser Ile Val Val Gly Val Leu Phe Ala
 65                  70                  75                  80
Leu Ser Ile Val Ala Leu Thr Ala Ser Phe Leu Val Tyr Ile Ala Asn
                 85                  90                  95
Ala Lys Leu Val Ala Ile Arg Ile Lys Phe Leu Ser Ser Gly Leu Gln
            100                 105                 110
Asp His Phe Ser Glu Ser Pro Ile Leu Gly Thr Leu Arg Lys Gly Arg
        115                 120                 125
Gly Ala Ser Ile Pro Leu Ile Ser Gly Gln Ala Asp Asp Ser Leu Pro
    130                 135                 140
Asn Arg Ile Gly Ile Lys Lys Ser Ala Glu Met Arg Val Leu Gln Lys
145                 150                 155                 160
Gly Ile Gly Thr Asp Tyr Lys Lys Tyr Lys Gln His Leu Asp Arg Val
                165                 170                 175
Asn Asn Asp Phe Thr Phe Val Cys Glu Gly Ile Ser Ala Leu Ile Pro
            180                 185                 190
Thr Glu Lys Asp Ala Pro Phe Pro Ile Glu Pro Ser His Leu Ala Gly
```

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        195                 200                 205
Val Phe Leu Val Ser Phe Ser Pro Asp Lys Asn Pro Ile Leu Lys Ile
    210                 215                 220
Thr Arg His Ala Glu Lys Met Leu Gln Pro Pro Gln Gly Gly Phe Pro
225                 230                 235                 240
Asn Gly Leu Val Trp Leu Cys Gly Ala Leu Ser Asp Pro Lys Lys Phe
                245                 250                 255
Ala Ala Pro Phe Leu Ser Leu Ile Glu Lys Thr His Gln Gly Ile Leu
            260                 265                 270
Val Ser Lys Asp Leu Lys Asp Asn Lys Glu Arg Lys Leu Ala Leu Glu
        275                 280                 285
Ala Ser Leu Leu Ser Leu Asn Ile Phe Phe Ser Gly Trp Cys Leu Gly
    290                 295                 300
Asn Pro Glu Tyr Asn Gln Tyr Ile Thr Thr Ala Val Ala Glu Lys Tyr
305                 310                 315                 320
Lys Asp Val Ser Val Arg Asn Arg Ile Tyr Asp Phe Leu Asp Thr Gly
                325                 330                 335
Asn Val Ile Ser Ala Leu Ala Leu Ala Ser Xaa Tyr Ser Gln Asp Ser
            340                 345                 350
Ala Trp Ala Ala Gly Leu Gln Lys Val Leu Arg Glu Glu Asp Lys Lys
        355                 360                 365
Thr Lys Lys Lys Ser Arg Glu Glu Val Ser Cys Leu Tyr Arg Asp Ile
    370                 375                 380
Asp Pro Gly Cys Cys Leu Arg Ala Leu Pro Lys Arg Phe Glu Ser Lys
385                 390                 395                 400
Ser Ser Gly Ser Gln Gly Ser Pro Lys Glu Gln Leu Ser Ser Leu Leu
                405                 410                 415
Lys Ala Leu Asp Gln Lys Ile Pro Ser Gly Val Leu Gly Leu Ile Ala
            420                 425                 430
Lys Ala Ser Ser Ala Asp Leu Lys Ala Asp Phe Ala Gly Met Leu Glu
        435                 440                 445
Val Ile Lys Gln Leu Gln Ala Leu Phe Asp Ser Tyr Pro Pro Leu Cys
    450                 455                 460
Glu Asp Asn Ile Leu Leu Trp Leu Ser Ala Ser Leu Glu Gln Val Gly
465                 470                 475                 480
Leu Gln Lys Lys Leu Arg Thr Phe Leu Pro Ser Ser Glu Lys Lys Leu
                485                 490                 495
Leu Glu Arg Val Leu Ser Thr Phe Leu Leu Gly Leu Tyr Thr Arg Gly
            500                 505                 510
Val Phe Ser Val Gly Gln Val Asn Gln Leu Ala Thr Ile Cys Asn Thr
        515                 520                 525
Gln Asp Ser Thr Glu Phe Cys Gln Arg Val Ser Asp Leu Ser Leu Ile
    530                 535                 540
Lys Arg Ala Leu Pro Ala Leu Phe Gly
545                 550
<210>236
<211>257
<212>PRT
<213>Chlamydia trachomatis
<400>236
Leu Arg Asn Arg Ser Pro Pro Phe Leu Asp Ser Phe Glu Arg Phe Met
  1               5                  10                  15
Ser Lys Gln Pro Glu Asn Ser Phe Ser Ser Asp Lys Phe Phe Pro Ile
            20                  25                  30
Lys Gln Lys Leu Ala Leu Glu Ala Val Ala Leu Val Glu Pro Gly Met
        35                  40                  45
Cys Val Gly Leu Gly Ser Gly Ser Thr Ala Arg Glu Phe Ile Leu Ala
    50                  55                  60
Leu Gly Asp Arg Val Arg Thr Glu Arg Leu Val Ile Thr Ala Val Ala
65                  70                  75                  80
Ser Ser Arg Ile Ser Gln Leu Leu Ala Glu Ala Val Gly Ile Pro Leu
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```
                85                  90                  95
Leu Asp His Ser Leu Leu Gln Asp Val Asp Leu Val Val Asp Gly Ala
            100                 105                 110
Asp Glu Val Asp Pro Cys Leu Arg Met Ile Lys Gly Gly Gly Gly Ala
        115                 120                 125
Leu Phe Arg Glu Lys Ile Leu Leu Gln Ser Gly Lys Arg Asn Val Ile
    130                 135                 140
Leu Val Asp Glu Arg Lys Leu Val Pro Thr Leu Gly Lys Phe Ser Leu
145                 150                 155                 160
Pro Ile Glu Ile Ala Pro Phe Gly Cys Ser Ser Val Gln Arg Ile Leu
                165                 170                 175
Asn Lys Gln Gly Tyr Phe Gly Glu Trp Arg Glu Thr Ser Ala Gly Glu
            180                 185                 190
Arg Phe Ile Thr Asp Asn Gly Asn Tyr Ile Tyr Asp Val Arg Thr Pro
        195                 200                 205
Asp Ser Tyr Ala Asn Pro Glu Glu Asp Met Ile Arg Leu Leu Gln Ile
    210                 215                 220
Arg Gly Ile Ile Asp Val Gly Phe Val Ile Ala Lys Ala Glu Val Trp
225                 230                 235                 240
Val Gly Tyr Ala Asp Gly Ser Ile Val Arg Lys Lys Glu His Asn Glu
                245                 250                 255
Tyr
```

<210>237
<211>155
<212>PRT
<213>Chlamydia trachomatis
<400>237

```
Leu Ser Glu Lys Lys Asn Ile Met Asn Ile Asp Arg Glu Ile Ile Ser
  1               5                  10                  15
Asp Thr Ser Leu Ile Leu Ile Asn Phe Tyr Lys Leu Val Ser Phe Arg
             20                  25                  30
Asn Tyr Ala Gly Ile Ile Leu Gly Thr Asp Glu Lys Gln Phe Ala Ile
         35                  40                  45
Tyr Gly His Ala Ser Met Asp Thr Ala Phe Lys Lys Arg Glu Asp Leu
     50                  55                  60
Ala Ala Glu Glu Glu Arg Ser Arg Pro Ser Thr His Asp Val Leu Asn
 65                  70                  75                  80
Phe Val Leu Thr Ser Phe Asp Leu Ser Val Val Arg Val Val Ile Thr
                85                  90                  95
Glu Tyr Lys Asp Asn Val Phe Tyr Ser Arg Leu Phe Leu Glu Gln Lys
            100                 105                 110
Arg Gly Asp Arg Leu Tyr Ile Ala Asp Ile Asp Ala Arg Pro Ser Asp
        115                 120                 125
Ser Ile Pro Leu Ala Ile Lys Tyr Gln Val Pro Ile Leu Cys Val Lys
    130                 135                 140
Ser Ile Phe Asp Glu Ala Ile Pro Tyr Glu Asp
145                 150                 155
```

<210>238
<211>191
<212>PRT
<213>Chlamydia trachomatis
<400>238

```
Asp Val Met Thr Lys Leu Pro Tyr Ala Leu Leu Asp Lys Gly Ser Leu
  1               5                  10                  15
Leu Val Ala Ser Pro Asp Val Asn Gly Gly Ile Phe Ser Arg Ser Val
             20                  25                  30
Val Leu Leu Cys Glu His Ser Pro Asn Gly Ser Phe Gly Leu Ile Leu
         35                  40                  45
Asn Lys Ile Leu Glu Ile Asp Ser Pro Glu Glu Ile Phe Pro Leu Asp
     50                  55                  60
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```
His Phe Asp Glu Ser Lys Val Arg Phe Cys Met Gly Gly Pro Leu Gln
 65                  70                  75                  80
Ala Asn Gln Ile Met Leu Leu His Thr Ser Pro Asp Ser Ala Asn Ser
                85                  90                  95
Ser Ile Glu Ile Cys Pro Ser Val Phe Leu Gly Gly Asp Phe Ser Phe
            100                 105                 110
Ala Gly Glu Lys Glu Gly Arg Thr Arg Asp Asp Lys Met Leu Leu Cys
        115                 120                 125
Phe Gly Tyr Ser Gly Trp Gln Gly Gly Gln Leu Glu Lys Glu Phe Leu
    130                 135                 140
Glu Gly Leu Trp Phe Leu Ala Pro Ser Ser Gln Glu Ile Ile Phe Thr
145                 150                 155                 160
Asp Ala Pro Glu Arg Met Trp Ser Asp Val Leu Gln His Leu Gly Gly
                165                 170                 175
Arg Phe Ala Ser Leu Ser Thr Ile Pro Glu Asn Leu Leu Leu Asn
            180                 185                 190
<210>239
<211>358
<212>PRT
<213>Chlamydia trachomatis
<400>239
Leu Leu Phe Leu Arg Phe Ser Leu Leu Thr Thr Ala Leu His Leu Glu
  1                   5                  10                  15
Arg Asn Lys Arg Gln Thr Tyr Thr Met Ser Glu Ile Glu Ile Lys Ser
             20                  25                  30
Ser Pro Val Cys Glu Ser Ile Ile Phe Phe Leu Met Arg Ser Trp Tyr
         35                  40                  45
Thr Leu Pro Phe Pro Gln Ser Leu Gln Arg Ser Leu Leu Met Ser His
     50                  55                  60
Leu Phe Ser Lys Ala Cys Gln Tyr Phe Pro Gly Gly Val Asn Ser Pro
 65                  70                  75                  80
Val Arg Ala Cys Arg Ala Val Asn Ile Thr Pro Pro Ile Val Ala Arg
                85                  90                  95
Ala Ser Lys Glu Val Phe Ile Asp Ser Leu Asp Lys Thr Phe Ile Asp
            100                 105                 110
Phe Cys Gly Ser Trp Gly Ser Leu Ile His Gly His Ser His Pro Lys
        115                 120                 125
Ile Cys Ala Ala Ile Arg Gln Gly Leu Glu Arg Gly Ser Ser Tyr Gly
    130                 135                 140
Leu Thr Ser Glu Gln Glu Ile Leu Phe Ala Glu Glu Ile Phe Ser Tyr
145                 150                 155                 160
Leu Gly Leu Glu Thr Asn Tyr Lys Ile Arg Phe Met Ser Thr Gly Ser
                165                 170                 175
Glu Ala Thr Met Thr Ala Val Arg Leu Ala Arg Gly Ile Thr Gly Arg
            180                 185                 190
Pro Ile Ile Ile Lys Phe Leu Gly Cys Tyr His Gly His Ala Asp Thr
        195                 200                 205
Phe Leu Gln Glu Lys Pro Phe Ser His Thr Ser Leu Asp Thr Leu Asp
    210                 215                 220
Leu Ala His Pro Leu Thr Leu Ser Leu Pro Phe Asn Asp Phe Pro Leu
225                 230                 235                 240
Phe Gln Thr Val Met Asn Ser Leu Gly His Lys Val Ala Gly Val Ile
                245                 250                 255
Phe Glu Pro Val Cys Ala Asn Met Gly Val Ile Leu Pro Val Pro Asp
            260                 265                 270
Phe Ile Glu Gly Val Ile Gln Thr Cys Gln Gln Thr Gly Ser Phe Ser
        275                 280                 285
Ile Met Asp Glu Val Val Thr Gly Phe Arg Val Ala Gln Gly Gly Ala
    290                 295                 300
Ala Ala Leu Tyr His Val Lys Pro Asp Ile Leu Val Phe Gly Lys Ile
305                 310                 315                 320
```

Leu Gly Gly Gly Leu Pro Ala Ser Ala Val Val Ala Pro Lys Asp Ile
325 330 335
Met Asp His Leu Ala Pro Glu Glu Lys Ser Ser Lys Leu Glu His Phe
340 345 350
Gln Glu Ile Leu Trp Leu
355

<210>240
<211>632
<212>PRT
<213>Chlamydia trachomatis
<400>240

Met Arg Tyr Asp Pro Gly Leu Ile Glu Glu Lys Trp Gln Lys Phe Trp
1 5 10 15
Lys Asn Glu Gln Val Phe Lys Ala Glu Glu Asp Glu Thr Lys Thr Lys
20 25 30
Tyr Tyr Val Leu Asp Met Phe Pro Tyr Pro Ser Gly Ala Gly Leu His
35 40 45
Val Gly His Leu Ile Gly Tyr Thr Ala Thr Asp Ile Val Ala Arg Cys
50 55 60
Lys Arg Ala Gln Gly Phe Ser Val Leu His Pro Met Gly Trp Asp Ser
65 70 75 80
Phe Gly Leu Pro Ala Glu Gln Tyr Ala Ile Arg Thr Gly Thr His Pro
85 90 95
Arg Glu Thr Thr Glu Lys Asn Ile Ala Asn Phe Lys Lys Gln Leu Thr
100 105 110
Ala Met Gly Phe Ser Tyr Asp Glu Ser Arg Glu Phe Ala Thr Ser Asp
115 120 125
Pro Glu Tyr Tyr Lys Trp Thr Gln Lys Leu Phe Leu Ile Leu Tyr Glu
130 135 140
Lys Gly Leu Ala Tyr Met Ala Asp Met Ala Val Asn Tyr Cys Pro Glu
145 150 155 160
Leu Gly Thr Val Leu Ser Asn Glu Glu Ile Glu Asn Gly Phe Ser Val
165 170 175
Asp Gly Gly Tyr Pro Val Glu Arg Arg Met Leu Arg Gln Trp Val Leu
180 185 190
Arg Ile Thr Ala Phe Ala Asp Gln Leu Leu Glu Gly Leu Asp Glu Leu
195 200 205
Asp Trp Pro Glu Ser Val Lys Gln Leu Gln Lys Asn Trp Ile Gly Lys
210 215 220
Ser Ser Gly Ala Ser Val Asn Phe Ala Thr Glu His Gly Ala Ile Glu
225 230 235 240
Val Phe Thr Thr Arg Pro Asp Thr Leu Ile Gly Val Ser Phe Leu Ala
245 250 255
Leu Ala Pro Glu His Pro Leu Val Asp Leu Leu Thr Ser Asp Glu Gln
260 265 270
Lys Ala Val Val Ala Gln Tyr Ile Lys Glu Thr Gln Ser Lys Ser Glu
275 280 285
Arg Asp Arg Ile Ser Glu Met Lys Thr Lys Ser Gly Val Phe Thr Gly
290 295 300
Ser Tyr Ala Lys His Pro Val Thr His Glu Leu Ile Pro Ile Trp Ile
305 310 315 320
Ala Asp Tyr Val Leu Met Gly Phe Gly Ser Gly Ala Val Met Gly Val
325 330 335
Pro Ala His Asp Glu Arg Asp Leu Leu Phe Ala Glu Gln Phe Asn Leu
340 345 350
Pro Val Val Ser Val Leu Asn Glu Glu Gly Val Cys Ile Asn Ser Cys
355 360 365
Cys Glu Gly Phe His Leu Asp Gly Leu Ser Gly Glu Glu Ala Lys Gln
370 375 380
Tyr Val Ile Asn Phe Leu Glu Glu Asn His Leu Gly Ala Ala Lys Ile
385 390 395 400

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Ala Tyr Lys Leu Arg Asp Trp Leu Phe Ser Arg Gln Arg Tyr Trp Gly
                405                 410                 415
Glu Pro Ile Pro Ile Ile His Phe Glu Asp Gly Ser Cys Arg Pro Leu
            420                 425                 430
Arg Asp Asp Glu Leu Pro Leu Leu Pro Pro Glu Ile Gln Asp Tyr Arg
        435                 440                 445
Pro Glu Gly Val Gly Gln Gly Pro Leu Ala Lys Val Arg Glu Trp Val
    450                 455                 460
Gln Val Phe Asp Thr Glu Thr Gln Arg Ala Gly Lys Arg Glu Thr His
465                 470                 475                 480
Thr Met Pro Gln Trp Ala Gly Ser Cys Trp Tyr Tyr Leu Arg Phe Cys
                485                 490                 495
Asp Ala His Asn Ser Ala Ala Pro Trp Ala Lys Glu Lys Glu Gln Tyr
            500                 505                 510
Trp Met Pro Val Asp Leu Tyr Ile Gly Gly Ala Glu His Ala Val Leu
        515                 520                 525
His Leu Leu Tyr Ala Arg Phe Trp His Gln Val Phe Tyr Glu Ala Gly
    530                 535                 540
Ile Val Ser Thr Pro Glu Pro Phe Lys Lys Leu Val Asn Gln Gly Leu
545                 550                 555                 560
Val Leu Ala Thr Ser Tyr Arg Ile Pro Gly Lys Gly Tyr Ile Tyr Pro
                565                 570                 575
Glu Thr Ala Lys Glu Glu Asn Gly Lys Trp Val Ala Pro Ser Gly Glu
            580                 585                 590
Glu Leu Asp Val Arg Gln Glu Lys Met Ser Lys Ser Lys Leu Asn Gly
        595                 600                 605
Val Asp Pro Gln Ile Leu Ile Asp Glu Phe Gly Leu Thr Leu Phe Gly
    610                 615                 620
Cys Thr Gln Cys Phe Gln Gly Leu
625                 630
<210>241
<211>202
<212>PRT
<213>Chlamydia trachomatis
<400>241
Ile Trp Thr Asp Ala Val Arg Met Tyr Ala Met Phe Ser Gly Pro Leu
  1                 5                  10                  15
Asp Lys Asn Lys Leu Trp Ser Asn Gln Gly Val Ala Gly Cys Arg Arg
            20                  25                  30
Phe Leu Asn Arg Phe Tyr Glu Met Val Ser Ser Asp Arg Val Lys Glu
        35                  40                  45
Asp Asn Asn Phe Glu Gly Leu Ser Leu Ala His Lys Leu Val Gln Arg
    50                  55                  60
Val Thr Asp Ala Ile Glu Lys Leu Ser Leu Asn Thr Ile Pro Ser Ser
65                  70                  75                  80
Phe Met Glu Phe Ile Asn Asp Phe Val Lys Leu Ala Val Tyr Pro Lys
                85                  90                  95
Ser Ala Val Glu Met Ala Val Arg Ala Leu Ala Pro Ile Ala Pro His
            100                 105                 110
Ile Ser Glu Glu Leu Trp Val Leu Leu Gly Asn Ser Pro Gly Val Gln
        115                 120                 125
Lys Ser Gly Trp Pro Ser Val Leu Pro Glu Tyr Leu Glu Glu Gln Thr
    130                 135                 140
Val Thr Ile Val Val Gln Val Asn Gly Lys Leu Arg Ala Arg Leu Asp
145                 150                 155                 160
Ile Met Lys Asp Ala Ser Lys Glu Glu Val Leu Ala Leu Ala Arg Glu
                165                 170                 175
Ser Ala Ser Lys Tyr Leu Glu Gly Cys Glu Val Lys Lys Ala Ile Phe
            180                 185                 190
Val Pro Ala Arg Leu Val Asn Phe Val Val
        195                 200
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09/830,459

<210>242
<211>431
<212>PRT
<213>Chlamydia trachomatis
<400>242

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Met Ile Arg Arg Trp Leu Thr Ser Arg Leu Tyr Asp Ala Phe Leu Val
  1               5                  10                  15
Cys Ala Phe Phe Val Ser Ala Pro Arg Ile Phe Tyr Lys Val Phe Phe
            20                  25                  30
His Gly Lys Tyr Ile Asp Ser Trp Lys Ile Arg Phe Gly Val Gln Lys
        35                  40                  45
Pro Phe Val Lys Gly Glu Gly Pro Leu Val Trp Phe His Gly Ala Ser
    50                  55                  60
Val Gly Glu Val Ser Leu Leu Ala Pro Leu Leu Asn Arg Trp Arg Glu
65                  70                  75                  80
Glu Phe Pro Glu Trp Arg Phe Val Val Thr Thr Cys Ser Glu Ala Gly
                85                  90                  95
Val His Thr Ala Arg Arg Leu Tyr Glu Ser Leu Gly Ala Thr Val Phe
            100                 105                 110
Val Leu Pro Leu Asp Leu Ser Cys Ile Ile Lys Ser Val Val Arg Lys
        115                 120                 125
Leu Ala Pro Asp Ile Val Ile Phe Ser Glu Gly Asp Cys Trp Leu His
    130                 135                 140
Phe Leu Thr Glu Ser Lys Arg Leu Gly Ala Lys Ala Phe Leu Ile Asn
145                 150                 155                 160
Gly Lys Leu Ser Glu His Ser Cys Lys Arg Phe Ser Phe Leu Lys Arg
                165                 170                 175
Leu Gly Arg Asn Tyr Phe Ala Pro Leu Asp Leu Leu Ile Leu Gln Asp
            180                 185                 190
Glu Leu Tyr Lys Gln Arg Phe Met Gln Ile Gly Ile Ser Ser Asp Lys
        195                 200                 205
Ile His Val Thr Gly Asn Met Lys Thr Phe Ile Glu Ser Ser Leu Ala
    210                 215                 220
Thr Asn Arg Arg Asp Phe Trp Arg Ala Lys Leu Gln Ile Ser Ser Gln
225                 230                 235                 240
Asp Arg Leu Ile Val Leu Gly Ser Met His Pro Lys Asp Val Glu Val
                245                 250                 255
Trp Ala Glu Val Val Ser His Phe His Asn Ser Ser Thr Lys Ile Leu
            260                 265                 270
Trp Val Pro Arg His Leu Glu Lys Leu Lys Glu His Ala Lys Leu Leu
        275                 280                 285
Glu Lys Ala Gly Ile Leu Phe Gly Leu Trp Ser Gln Gly Ala Ser Phe
    290                 295                 300
Arg Gln Tyr Asn Ser Leu Ile Met Asp Ala Met Gly Val Leu Lys Asp
305                 310                 315                 320
Ile Tyr Ser Ala Ala Asp Ile Ala Phe Val Gly Gly Thr Phe Asp Pro
                325                 330                 335
Ser Val Gly Gly His Asn Leu Leu Glu Pro Leu Gln Lys Glu Ala Pro
            340                 345                 350
Leu Met Phe Gly Pro Tyr Ile Tyr Ser Gln Ser Val Leu Ala Glu Arg
        355                 360                 365
Leu Arg Glu Lys Glu Ala Gly Leu Ser Val Asn Lys Glu Thr Leu Leu
    370                 375                 380
Asp Val Val Thr Asp Leu Leu Gln Asn Glu Lys Asn Arg Gln Ala Tyr
385                 390                 395                 400
Ile Glu Lys Gly Lys Ser Phe Leu Lys Gln Glu Glu Asn Ser Phe Gln
                405                 410                 415
Gln Thr Trp Glu Ile Leu Lys Ser Gln Ile Thr Cys Met Lys Ile
            420                 425                 430
```

<210>243
<211>570

<212>PRT
<213>Chlamydia trachomatis
<400>243

```
Leu His Ile Leu Arg Ser Phe Ser Arg Pro Cys Arg Leu Ala Lys Thr
  1               5                  10                  15
Ser Ile Ile Gly His Thr Met Glu Leu Leu Ser Val Asn Lys Ser Tyr
            20                  25                  30
Phe Glu Leu Gln Arg Leu His Tyr Arg Pro Asp Thr Leu Ser Leu Leu
        35                  40                  45
Asn Ser Leu Cys Ser Met His Ile Gln Glu Lys Pro Ser Ser Glu Pro
    50                  55                  60
Ala Ser Asp Leu Leu Ala Lys His Ile Pro His Leu Cys Ala Leu Pro
65                  70                  75                  80
Asp Leu Thr Leu Gln Lys Asp Ala Pro Ser Ser Ser Glu Pro Leu Arg
                85                  90                  95
Ile Gly Val Leu Leu Ser Gly Gly Gln Ala Pro Gly Gly His Asn Val
            100                 105                 110
Val Ile Gly Leu Phe Glu Gly Leu Arg Ala Phe Asn Lys Glu Thr Lys
        115                 120                 125
Leu Phe Gly Phe Ile Lys Gly Pro Leu Gly Leu Ile Arg Gly Leu Tyr
    130                 135                 140
Lys Asp Leu Asp Ile Ser Val Ile Tyr Asp Tyr Tyr Asn Ala Gly Gly
145                 150                 155                 160
Phe Asp Met Leu Ser Ser Ser Arg Glu Lys Ile Lys Thr Lys Glu Gln
                165                 170                 175
Lys Ser Ala Ile Leu Ala Thr Val Lys Lys Met Lys Leu His Gly Leu
            180                 185                 190
Leu Ile Val Gly Gly Asp Asn Ser Asn Thr Asp Thr Ala Met Leu Ala
        195                 200                 205
Glu Tyr Phe Ile Glu His Asn Cys Pro Thr Ala Val Ile Gly Val Pro
    210                 215                 220
Lys Thr Ile Asp Gly Asp Leu Lys Asn Ala Trp Ile Glu Thr Pro Leu
225                 230                 235                 240
Gly Phe His Thr Ser Cys Arg Thr Tyr Ser Glu Met Ile Gly Asn Leu
                245                 250                 255
Glu Lys Asp Val Leu Ser Thr Arg Lys Tyr His His Phe Val Lys Leu
            260                 265                 270
Met Gly Glu Gln Ala Ser His Ser Thr Leu Glu Cys Gly Leu Gln Thr
        275                 280                 285
Leu Pro Asn Ile Thr Leu Ile Gly Glu Glu Val Ala Val Gln His Ala
    290                 295                 300
Ser Leu Gln Ser Leu Ser Leu Ser Ile Ala Gln Gly Leu Ile Glu Arg
305                 310                 315                 320
Phe His Arg Gly Lys Asp Tyr Ser Thr Ile Leu Ile Pro Glu Gly Leu
                325                 330                 335
Ile Lys Gln Ile Pro Asp Thr Lys Arg Leu Ile Gln Glu Leu Asn Thr
            340                 345                 350
Leu Ile Ala Glu Glu Gln Phe Ser Val His Asn Leu Asp Gln Gln Leu
        355                 360                 365
Ser Pro Met Ala Ile Glu Thr Phe Ser Ser Leu Pro Glu Asn Ile Arg
    370                 375                 380
Asp Gln Leu Leu Leu Asp Arg Asp Ser Tyr Gly Asn Ile Arg Val Ser
385                 390                 395                 400
Lys Ile Ala Ile Glu Glu Leu Leu Ala Ser Leu Val Ser Lys Glu Ile
                405                 410                 415
Ser Lys Leu Glu Pro Thr Met Ser Phe Ser Pro Val Thr His Phe Leu
            420                 425                 430
Gly Tyr Glu Ser Arg Ala Ser Phe Pro Ser Asn Phe Asp Ser Asn Tyr
        435                 440                 445
Gly Leu Ala Leu Gly Ile Ala Ala Ser Leu Phe Leu Val Arg Gly Lys
    450                 455                 460
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Thr Gly Tyr Met Val Thr Ile Gly Asn Leu Ala Glu Thr Tyr Thr Glu
465                 470                 475                 480
Trp Thr Ile Ala Ala Thr Pro Leu Tyr Lys Met Met His Leu Glu Lys
                485                 490                 495
Arg Phe Asn Gln Glu Thr Pro Val Ile Lys Thr Asp Ser Val Ser Pro
            500                 505                 510
Asp Ala Pro Met Ala Lys Tyr Leu His Lys Met Lys Glu Ile Cys Leu
        515                 520                 525
Leu Glu Asp Ser Tyr Arg Phe Pro Gly Pro Leu Gln Tyr Phe Glu Glu
    530                 535                 540
Gln Ala Leu Val Asp Gln Arg Pro Leu Thr Leu Leu Trp Glu Lys Gly
545                 550                 555                 560
Lys Leu Ser Glu Asn Asn Ala Thr Lys Phe
                565                 570
<210>244
<211>302
<212>PRT
<213>Chlamydia trachomatis
<400>244
Met Ala Lys Thr Leu Phe Tyr Leu Phe Arg Asn Pro Arg Ser Gly Leu
  1               5                  10                  15
Leu Thr Ile Ser Met Asp Ile Thr Lys Glu Leu Pro Phe Ile Met Met
            20                  25                  30
Gln Gln Pro His Tyr Phe Pro His Ser Lys Lys Ile Phe Glu Ile Pro
        35                  40                  45
Leu Leu Asp Asn Val Thr Ser Leu Gly Val Leu His Ile Pro His Ser
    50                  55                  60
Gln Glu Lys Thr Phe Pro Leu Val Ile Val Leu His Gly Leu Ala Ser
65                  70                  75                  80
Ser Lys Ile Gly Thr Lys Arg Ser Tyr Leu His Leu Ala Asn Gln Leu
                85                  90                  95
Val Gln Glu Gly Ile Gly Val Leu Arg Val Asp Leu Pro Gly His Gly
            100                 105                 110
Asp Ser Glu Gly Phe Ile His Glu Phe Ser Leu Thr Asp Tyr Ile Gln
        115                 120                 125
Ala Ser Gln Lys Ile Ile Gln Phe Gly Leu Ser Leu Pro Gln Ala Asn
    130                 135                 140
His Ser Val Ala Leu Phe Gly Ser Ser Leu Gly Gly Ser Leu Ser Leu
145                 150                 155                 160
Leu Asn Leu Pro Tyr Phe Pro Glu Ile Gln His Ala Ala Ile Trp Thr
                165                 170                 175
Pro Thr Ile Gln Gly Ala Leu Trp Leu Glu Asp Thr Met Gln Ser Met
            180                 185                 190
Ser Pro Ser Leu Gln Leu Pro Pro Asp Asn Phe Ser Tyr Gln Gly Ile
        195                 200                 205
Pro Leu Gly Lys Lys Phe Cys Ser Gln Phe Ile Glu Leu Asp Thr Val
    210                 215                 220
Asp Ala Leu Ser Lys Ile Thr Gln Glu Val Ser Ile Leu Tyr Leu Gln
225                 230                 235                 240
Gly Glu Asp Asp Ala Val Val Ser Leu Arg His Gln Ala Leu Phe Ala
                245                 250                 255
Lys Thr Phe Thr Gly Lys Ala Ser Tyr Arg Thr Tyr Pro Lys Met Thr
            260                 265                 270
His Gln Leu Cys Ile Tyr Ser Glu Ala Phe Gln Asp Leu Val Asp Trp
        275                 280                 285
Leu Lys His Gln Leu Leu Gly Thr Pro Trp Ser Tyr Ser Leu
    290                 295                 300
<210>245
<211>561
<212>PRT
<213>Chlamydia trachomatis
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09/656,742 09/08/2000

<400>245

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Ala Asn Val Phe Glu Gln Lys Leu Met Ser Ser Asn Lys His Ala Ser
  1               5                  10                  15
Leu Cys Gln Lys Thr Pro Ser Leu Cys Arg Glu Leu Gln Lys Ala Pro
             20                  25                  30
Ala Leu Leu Leu Thr Glu Asp Ile Arg Phe Lys Ala Leu Leu Asn Glu
         35                  40                  45
Arg Ile Asp Ser Val Ala Glu Leu Phe Pro Cys Thr Tyr Asn Ser Pro
     50                  55                  60
Tyr Tyr Lys Phe Ile Ser Lys Ser Asp Leu Ser Ala Glu Thr Phe Pro
 65                  70                  75                  80
Leu Lys Val Gly Val Met Leu Ser Gly Gly Pro Ala Pro Gly Gly His
                 85                  90                  95
Asn Val Ile Leu Gly Leu Leu His Ser Ile Lys Lys Leu His Pro Asp
            100                 105                 110
Ser Gln Leu Leu Gly Phe Ile Arg Asn Gly Glu Gly Leu Leu Asn Asn
        115                 120                 125
Asn Thr Val Glu Ile Thr Asp Glu Phe Ile Glu Glu Phe Arg Asn Ser
    130                 135                 140
Gly Gly Phe Asn Cys Ile Gly Thr Gly Arg Thr Asn Ile Ile Thr Glu
145                 150                 155                 160
Glu Asn Lys Ala Arg Cys Leu Gln Thr Ala Asn Glu Leu Asp Leu Asp
                165                 170                 175
Gly Leu Val Ile Ile Gly Gly Asp Gly Ser Asn Thr Ala Thr Ala Ile
            180                 185                 190
Leu Ala Glu Tyr Phe Ala Lys His Gln Ala Lys Thr Val Leu Val Gly
        195                 200                 205
Val Pro Lys Thr Ile Asp Gly Asp Leu Gln His Leu Phe Leu Asp Leu
    210                 215                 220
Thr Phe Gly Phe Asp Thr Ala Thr Lys Phe Tyr Ser Ser Ile Ile Ser
225                 230                 235                 240
Asn Ile Ser Arg Asp Ala Leu Ser Cys Lys Gly His Tyr His Phe Ile
                245                 250                 255
Lys Leu Met Gly Arg Ser Ser Ser His Ile Thr Leu Glu Cys Ala Leu
            260                 265                 270
Gln Thr His Pro Asn Ile Ala Leu Ile Gly Glu Glu Ile Ala Glu Lys
        275                 280                 285
Ser Ile Ser Leu Glu Thr Leu Ile His Asp Ile Cys Glu Ile Ile Ala
    290                 295                 300
Asp Arg Ala Ala Met Gly Lys Tyr His Gly Val Ile Leu Ile Pro Glu
305                 310                 315                 320
Gly Val Ile Glu Phe Ile Pro Glu Ile Gln Ser Leu Val Lys Glu Ile
                325                 330                 335
Glu Ser Ile Pro Glu Gln Glu Asn Leu Tyr Gln Ala Leu Ser Leu Ser
            340                 345                 350
Ser Gln Gln Leu Leu Cys Gln Phe Pro Glu Asp Ile Cys His Gln Leu
        355                 360                 365
Leu Tyr Asn Arg Asp Ala His Gly Asn Val Tyr Val Ser Lys Ile Ser
    370                 375                 380
Val Asp Lys Leu Leu Ile His Leu Val Arg Gln His Leu Glu Thr His
385                 390                 395                 400
Phe Arg Gln Val Pro Phe Asn Xaa Ser Ala His Phe Leu Gly Tyr Glu
                405                 410                 415
Gly Arg Ser Gly Thr Pro Thr His Phe Asp Asn Val Tyr Ser Tyr Asn
            420                 425                 430
Leu Gly Tyr Gly Ala Gly Val Leu Val Phe Asn Arg Cys Asn Gly Tyr
        435                 440                 445
Leu Ser Thr Ile Glu Gly Leu Thr Ser Pro Ile Glu Lys Trp Arg Leu
    450                 455                 460
Arg Ala Leu Pro Ile Val Arg Met Leu Thr Thr Lys Gln Gly Lys Asp
465                 470                 475                 480
```

60/344,750

Ser Lys His Tyr Pro Leu Ile Lys Lys Arg Leu Val Asp Ile Ala Ser
485 490 495
Pro Val Phe Asn Lys Phe Ser Leu Tyr Arg Lys Ile Trp Ala Leu Glu
500 505 510
Asp Ser Tyr Arg Phe Val Gly Pro Leu Gln Ile His Ser Pro Glu Asp
515 520 525
Ala His Ser Asp Asp Phe Pro Pro Leu Ile Leu Phe Leu Asn His Asn
530 535 540
Glu Trp Gln Lys Arg Cys Ser Ile Cys Leu Glu Ile Pro Asp Gln Asp
545 550 555 560
Tyr

<210>246
<211>473
<212>PRT
<213>Chlamydia trachomatis
<400>246
Gly Ala Met Asn Lys His Lys Arg Phe Leu Ser Leu Val Leu Leu Thr
1 5 10 15
Phe Ile Leu Leu Gly Ile Trp Phe Cys Pro His Ser Asp Leu Ile Asp
20 25 30
Ser Lys Ala Trp His Leu Phe Ala Ile Phe Thr Thr Thr Ile Ile Gly
35 40 45
Ile Ile Val Gln Pro Ala Pro Met Gly Ala Ile Val Ile Met Gly Ile
50 55 60
Ser Leu Leu Leu Val Thr Lys Thr Leu Thr Leu Asp Gln Ala Leu Ser
65 70 75 80
Gly Phe His Ser Pro Ile Ala Trp Leu Val Phe Leu Ser Phe Ser Ile
85 90 95
Ala Lys Gly Val Ile Lys Thr Gly Leu Gly Glu Arg Val Ala Tyr Phe
100 105 110
Phe Val Lys Ile Leu Gly Lys Ser Pro Leu Gly Leu Ser Tyr Gly Leu
115 120 125
Val Leu Thr Asp Phe Leu Leu Ala Pro Ala Ile Pro Ser Leu Thr Ala
130 135 140
Arg Ala Gly Gly Ile Leu Phe Pro Val Val Met Gly Leu Ser Glu Ser
145 150 155 160
Phe Gly Ser Ser Val Glu Lys Gly Thr Glu Lys Leu Leu Gly Ser Phe
165 170 175
Leu Ile Lys Val Ala Tyr Gln Ser Ser Val Ile Thr Ser Ala Met Phe
180 185 190
Leu Thr Ala Met Ala Gly Asn Pro Ile Ile Ser Ala Leu Ala Ser His
195 200 205
Ser Gly Val Thr Leu Thr Trp Ala Ile Trp Ala Lys Ala Ala Ile Leu
210 215 220
Pro Gly Ile Ile Ser Leu Ala Cys Met Pro Phe Val Leu Phe Lys Leu
225 230 235 240
Phe Pro Pro Gln Ile Thr Ser Cys Glu Glu Ala Val Ala Thr Ala Lys
245 250 255
Thr Arg Leu Lys Glu Met Gly Pro Leu Asn Gln Gly Glu Arg Ile Ile
260 265 270
Leu Leu Ile Phe Ser Leu Leu Ile Ser Leu Trp Thr Phe Gly Asp Ser
275 280 285
Ile Gly Ile Ser Ala Thr Thr Thr Thr Phe Ile Gly Leu Ser Leu Leu
290 295 300
Ile Leu Thr Asn Ile Leu Asp Trp Gln Lys Asp Val Leu Ser Asn Thr
305 310 315 320
Thr Ala Trp Glu Thr Phe Val Trp Phe Gly Ala Leu Ile Met Met Ala
325 330 335
Ser Phe Leu Ser Ala Phe Gly Phe Ile His Phe Val Gly Asp Ser Val
340 345 350

```
Ile Gly Ser Val Gln Gly Leu Ser Trp Lys Ile Gly Phe Pro Ile Leu
        355                 360                 365
Phe Leu Ile Tyr Phe Tyr Ser His Tyr Leu Phe Ala Ser Asn Thr Ala
    370                 375                 380
His Ile Ala Ala Met Tyr Pro Ile Phe Leu Thr Val Ser Ile Ser Leu
385                 390                 395                 400
Gly Ala Asn Pro Met Phe Ala Ala Leu Ala Leu Ala Phe Ala Ser Asn
                405                 410                 415
Leu Phe Gly Gly Leu Thr His Tyr Gly Ser Gly Pro Ala Pro Leu Tyr
            420                 425                 430
Phe Gly Ser His Phe Val Ser Val Gln Glu Trp Trp Arg Ser Gly Phe
        435                 440                 445
Ile Leu Ser Ile Val Asn Leu Thr Ile Trp Leu Gly Leu Gly Ser Trp
    450                 455                 460
Trp Trp Tyr Cys Leu Gly Leu Ile Arg
465                 470
<210>247
<211>318
<212>PRT
<213>Chlamydia trachomatis
<400>247
Cys Gly Leu Asp Ser Pro Tyr Leu Leu Arg Leu Arg Ala Pro Trp Ser
  1               5                  10                  15
Leu Leu Ala Thr Ala Cys Ser Phe Ser Glu Ser Pro Ser Phe Arg Glu
            20                  25                  30
Arg Leu Glu Gly Leu His Ser Tyr Arg Val Val Asp Arg Arg Phe Leu
        35                  40                  45
Ala Cys Tyr Asp Gln Glu Thr Ile Asp Tyr Ser Gln Ile Phe Arg Thr
    50                  55                  60
Gly Val Thr Leu Thr Met Glu Ile Ser His Ile Leu Glu Asp Leu Val
65                  70                  75                  80
Tyr Asp Asn Gly Val Leu Pro Arg Glu Ala Ile Glu Ala Ala Ile Val
                85                  90                  95
Lys His His Gln Ile Thr Pro Tyr Leu Leu Lys Ile Leu Glu Glu Gly
            100                 105                 110
Ile Asp His Val Ser Asp Ile Ile Asp Asp Asp Cys Tyr Gln Gly His
        115                 120                 125
Leu Tyr Ala Met Tyr Leu Leu Ala Gln Phe Arg Glu Thr Arg Ala Leu
    130                 135                 140
Pro Leu Ile Ile Lys Leu Phe Ser Phe Glu Gln Asp Ile Pro His Ala
145                 150                 155                 160
Ile Ala Gly Asp Val Leu Thr Glu Asp Leu Ser Arg Ile Leu Ala Ser
                165                 170                 175
Val Cys Asp Asp Val Ala Leu Ile Gln Glu Leu Ile Glu Thr Pro His
            180                 185                 190
Val Asn Pro Tyr Val Gln Ala Ala Ala Ile Ser Ser Leu Val Ala Leu
        195                 200                 205
Val Gly Val His Lys Leu Ser Arg Glu Thr Ala Ile Arg Tyr Phe Gly
    210                 215                 220
Glu Leu Leu Asn Tyr Arg Leu Glu Lys Lys Pro Ser Phe Ala Trp Asp
225                 230                 235                 240
Ser Leu Val Ala Ser Ile Cys Ala Leu Tyr Pro Lys Glu Leu Phe Tyr
                245                 250                 255
Pro Ile Ser Lys Ala Phe Ser Ala Gly Leu Ile Asp Thr Ser Phe Ile
            260                 265                 270
Ser Met Glu Asp Val Glu Thr Ile Ile His Glu Glu Ser Ile Asp Ser
        275                 280                 285
Cys Leu Lys Glu Val Phe Ser Ser Thr Asp Leu Ile Asn Asp Thr Leu
    290                 295                 300
Glu Glu Met Glu Lys Trp Leu Glu Arg Phe Pro Phe Glu Ser
305                 310                 315
```

<210>248
<211>249
<212>PRT
<213>Chlamydia trachomatis
<400>248

```
Leu Ala Met Ser Thr Leu Val Ser Ile Lys Asp Leu Ser Leu Thr Ile
  1               5                  10                  15
Arg Lys Gln Pro Ile Leu Arg Asn Val His Leu Glu Ile Cys Arg Gly
            20                  25                  30
Glu Cys Leu Thr Ile Val Gly Ala Ser Gly Ser Gly Lys Thr Ser Leu
        35                  40                  45
Ala Leu Ala Ile Leu Gly Leu Leu Pro Pro Asp Ala Gln Asp Ser Ile
    50                  55                  60
Asp Phe His Leu Pro Pro Lys Thr Pro Arg Thr Lys Ala Val Gln Met
65                  70                  75                  80
Ile Trp Gln Asp Val Tyr Ser Ser Leu Asn Pro Met Met Thr Ile Gln
                85                  90                  95
Glu Ile Ile Ala Glu Pro Leu His Ile Met Gly Gly Leu Ser Lys Ser
            100                 105                 110
Xaa Gln Gln Glu Glu Ile Ala His Ala Leu Lys Leu Val His Leu Pro
        115                 120                 125
Lys Ser Phe Leu Ser Leu Arg Pro Ile Lys Leu Ser Gly Gly Gln Arg
    130                 135                 140
Gln Arg Ile Ala Ile Ala Lys Ala Leu Val Cys Lys Pro Glu Leu Ile
145                 150                 155                 160
Ile Cys Asp Glu Pro Leu Ser Ala Leu Asp Thr Met Asn Gln Lys Leu
                165                 170                 175
Ile Leu Asp Leu Phe Gln Thr Ile Lys Asn Gln Tyr Asn Asn Ala Phe
            180                 185                 190
Leu Phe Ile Thr His Asp Met Ser Ala Ala Tyr Thr Leu Ala Asp Lys
        195                 200                 205
Ile Ala Val Met Asp Arg Gly Tyr Leu Val Glu Ile Ala Ser Lys Gln
    210                 215                 220
Glu Ile Phe Ser Ser Pro Lys His Ile Lys Thr Arg Glu Leu Leu Asp
225                 230                 235                 240
Ala Ile Pro Ala Phe Thr Phe Ser Phe
                245
```

<210>249
<211>281
<212>PRT
<213>Chlamydia trachomatis
<400>249

```
Arg Lys Ile Pro Leu Ser Glu Asp Leu Leu Lys Ile Asp Asn Leu Val
  1               5                  10                  15
Val Ser Val Lys Asn Ser Asn Gln Arg Leu Val Asn His Leu Ser Leu
            20                  25                  30
Thr Ile Lys Arg Cys Gln Ser Met Ala Leu Val Gly Glu Asn Gly Ser
        35                  40                  45
Gly Lys Thr Thr Val Ser Lys Ala Val Leu Gly Phe Leu Pro Asp Asn
    50                  55                  60
Cys Tyr Ile Gln Ser Gly Arg Ile Leu Tyr Ser Ser Thr Asp Ile Thr
65                  70                  75                  80
Arg Leu Ser Arg Arg Gln Leu Gln Thr Ile Arg Gly Lys Lys Ile Ala
                85                  90                  95
Thr Ile Phe Gln Asn Ala Met Gly Thr Leu Thr Pro Ser Met Arg Val
            100                 105                 110
Gly Ala Gln Ile Val Glu Thr Leu Arg His His Phe Asp Met Ser Lys
        115                 120                 125
Glu Glu Ala Phe Ser Lys Ala Arg Glu Leu Leu Glu Ser Val His Ile
    130                 135                 140
Glu Ser Pro Asp Arg Cys Leu Gln Leu Tyr Pro Phe Glu Leu Ser Gly
```

145 150 155 160
Gly Met Cys Gln Arg Val Ser Ile Ala Ile Ala Leu Ala Thr Asn Pro
165 170 175
Glu Leu Ile Ile Ala Asp Glu Pro Ser Thr Ala Leu Asp Ser Ile Ser
180 185 190
Gln Ala Gln Val Leu Arg Val Leu Thr Gln Ile His Gln Asn His Ser
195 200 205
Thr Ala Leu Leu Leu Ile Thr His Asn Leu Ala Leu Val Ser Glu Leu
210 215 220
Cys Glu Glu Met Ala Ile Ile Arg Tyr Gly Glu Ile Val Glu Gln Gly
225 230 235 240
Pro Val Gln Glu Leu Leu His Ser Pro Ser His Pro Tyr Thr Gln Gln
245 250 255
Leu Ile Arg Ala Ile Pro Arg Ile Pro Ser Pro Ser Tyr Leu Ser Pro
260 265 270
Thr Glu Pro Leu Ala Thr Thr Ala Tyr
275 280

<210>250
<211>284
<212>PRT
<213>Chlamydia trachomatis
<400>250

Asn Lys Leu Met Phe Arg Ser Ser Ser Ser His Thr Trp Arg Tyr Ile
1 5 10 15
Arg Thr Asn Lys Met Leu Val Leu Gly Cys Leu Thr Leu Ala Val Leu
20 25 30
Val Leu Ala Ala Thr Phe Leu Pro Tyr Leu Tyr Pro Asp Tyr Glu Arg
35 40 45
Thr Phe Pro Glu His Ala Leu Gln Ser Pro Ser Lys Ala Phe Pro Phe
50 55 60
Gly Thr Asp Asn Leu Gly Arg Cys Met Leu Ala Arg Thr Leu Gln Gly
65 70 75 80
Ile Arg Leu Ser Leu Leu Ile Ala Val Ser Ala Thr Ile Ile Asp Val
85 90 95
Cys Leu Gly Leu Leu Trp Ser Thr Leu Ala Leu Ala Ser Gly Lys Lys
100 105 110
Val Ala Asp Ile Met Ser Arg Ile Thr Glu Ile Leu Phe Ser Ile Pro
115 120 125
Arg Ile Pro Val Ile Ile Leu Leu Leu Val Ile Phe Asn His Gly Ile
130 135 140
Leu Pro Leu Ile Leu Ala Met Thr Ile Thr Gly Trp Ile Pro Ile Ala
145 150 155 160
Arg Ile Ile Tyr Gly Gln Phe Leu Leu Leu Glu Asn Lys Glu Phe Val
165 170 175
Leu Ser Ala Arg Ala Leu Gln Ala Ser Thr Phe His Ile Leu Arg Lys
180 185 190
His Leu Leu Pro Asn Ser Leu Gly Pro Ile Ile Ser Thr Leu Ile Phe
195 200 205
Thr Ile Pro Asn Ala Val Tyr Thr Glu Ala Phe Ile Ser Phe Leu Gly
210 215 220
Leu Gly Xaa Gln Pro Pro Tyr Ala Ser Leu Gly Thr Leu Val Lys Glu
225 230 235 240
Gly Ile His Ser Leu Ala Tyr His Pro Trp Leu Phe Phe Ile Pro Ser
245 250 255
Phe Phe Met Ile Ile Val Ser Val Ser Phe Asn Cys Ile Gly Glu Gly
260 265 270
Leu Gln Thr Lys Leu Leu Glu Glu Asn Thr Leu Val
275 280

<210>251
<211>206
<212>PRT

<213>Chlamydia trachomatis
<400>251
Met Leu Ser Tyr Ile Lys Arg Arg Leu Leu Phe Asn Leu Leu Ser Leu
1 5 10 15
Trp Val Val Val Thr Leu Thr Phe Phe Ile Ile Lys Thr Ile Pro Gly
20 25 30
Asp Pro Phe Asn Asp Glu Asn Gly Asn Ile Leu Ser Pro Glu Thr Leu
35 40 45
Ala Leu Leu Lys Asn Arg Tyr Gly Leu Asp Lys Pro Leu Phe Thr Gln
50 55 60
Tyr Leu Ile Tyr Leu Lys Cys Leu Leu Thr Leu Asp Phe Gly Glu Ser
65 70 75 80
Leu Ile Tyr Lys Asp Arg Thr Val Ile Ser Ile Ile Ala Ala Ala Leu
85 90 95
Pro Ser Ser Ala Ile Leu Gly Leu Glu Ser Leu Cys Leu Ser Leu Phe
100 105 110
Gly Gly Ile Thr Leu Gly Ile Leu Ala Ala Phe Tyr Lys Lys Ser Cys
115 120 125
Gly Arg Thr Ile Phe Phe Ser Ser Val Ile Gln Ile Ser Val Pro Ala
130 135 140
Phe Val Ile Gly Ala Phe Leu Gln Tyr Val Phe Ala Ile Lys Tyr Ser
145 150 155 160
Cys Leu Pro Ile Ala Cys Trp Gly Asn Phe Ser His Thr Leu Leu Pro
165 170 175
Ser Ile Ala Leu Ala Ile Thr Pro Met Ala Phe Ile Thr Gln Leu Thr
180 185 190
Tyr Ala Ser Val Ser Ala Asn Leu Lys Lys Xaa Thr Ser Tyr
195 200 205
<210>252
<211>214
<212>PRT
<213>Chlamydia trachomatis
<400>252
Thr Lys Lys Leu Leu Pro Pro Trp Leu Leu Xaa Xaa Pro Ala Lys His
1 5 10 15
Leu Leu Pro Ala His Leu His Thr Tyr Pro Glu Gln Pro Ser Tyr Lys
20 25 30
Gln Gln Glu Ala Ile Thr Leu Ala Lys Ser Leu Leu Glu Glu Ala Leu
35 40 45
Thr Glu Leu Asn Met Thr Ile Lys Asp Leu Glu Lys Tyr Pro Leu Thr
50 55 60
Phe Ser Ala Thr Ser Thr Val Asn Ser Gln Ile Ala Gln Met Leu Arg
65 70 75 80
Asp Gln Trp Arg Arg Ser Leu Gly Ile Thr Phe Pro Ile Cys Gly Lys
85 90 95
Glu Tyr Ala Leu Leu Gln Asn Asp Leu Ile Gly Asn Thr Phe Phe Met
100 105 110
Ser Ile Gly Gly Trp Phe Ala Asp Phe Ser Asp Pro Leu Ala Phe Leu
115 120 125
Ser Ile Phe Ser Ser Lys Gly Val Lys Pro Tyr Ala Leu Gln Asp Pro
130 135 140
Gln Phe Asp Gln Leu Ile Leu Ser Ile Glu Thr Glu Lys Asn Pro Gln
145 150 155 160
Lys Arg Ser Ala Leu Ile Ser Glu Ala Ser Leu Tyr Ile Glu Arg Gln
165 170 175
Asn Val Ile Glu Pro Leu Tyr His Asp Val Phe His Tyr Thr Thr Asn
180 185 190
Asn Lys Leu Ser Phe Val Arg Leu His Pro Ser Gly Leu Val Asp Met
195 200 205
Arg Tyr Ala Lys Asn Ser
210

<210>253
<211>339
<212>PRT
<213>Chlamydia trachomatis
<400>253

```
Gly Gly His Ser Met Arg Lys Ile Ser Val Gly Ile Cys Leu Leu Leu
  1               5                  10                  15
Ala Leu Ala Thr Ser Gly Cys Ser Lys Ser Ser Ser Asn Ala Thr His
            20                  25                  30
Arg Ser Pro Ala Thr His Thr Val Ala Val Ser Val Lys Asp Asp Pro
        35                  40                  45
Arg Thr Phe Asp Pro Arg Glu Val Arg Leu Leu Ser Asp Ile Asn Leu
    50                  55                  60
Ile His His Leu Tyr Glu Gly Leu Val Gln Glu Thr Pro Ser Gly Glu
65                  70                  75                  80
Val Phe Pro Ala Leu Ala Glu Ser Phe Phe Leu Ser Glu Asp Lys Lys
                85                  90                  95
Thr Tyr Thr Phe Asn Leu Lys Lys Ala Phe Trp Ser Asn Gly Asp Leu
            100                 105                 110
Ile Thr Ala His Asp Phe Val Arg Ser Trp Asn Asp Val Leu Gln Asn
        115                 120                 125
Arg Val Ala Ser Ile Tyr Ser Phe Ala Phe Leu Pro Ile Asp Val Asn
    130                 135                 140
Lys Asp Ser Gly Phe Phe Ala Lys Asp Asp His Thr Leu Val Ile Asn
145                 150                 155                 160
Leu Leu Thr Pro Thr Pro His Phe Leu Lys Leu Leu Thr Leu Pro Val
                165                 170                 175
Phe Tyr Pro Val His Ser Gln His Gln Ile Trp Lys Glu Glu Lys Ser
            180                 185                 190
Leu Pro Ile Ser Thr Gly Ala Phe Phe Leu Lys Glu Lys Lys Asp Arg
        195                 200                 205
Arg Trp Leu Lys Leu Glu Lys Ser Pro Tyr Tyr Tyr Asn Lys Asp Gln
    210                 215                 220
Val Ala Val Gln Glu Ile Cys Ile His Ile Ile Pro Asp Gln Gln Thr
225                 230                 235                 240
Ala Ser Ala Leu Phe Asn Gln Gly Lys Leu Asp Trp Gln Gly Leu Pro
                245                 250                 255
Trp Gly His Ser Ile Pro Gln Glu Thr Leu Ala Thr Ala Asn Lys Arg
            260                 265                 270
Arg Ala Pro Gln Ser Phe Asp Ile Ser Gly Thr Ser Trp Leu Thr Phe
        275                 280                 285
Asn Thr Ala Lys Lys Pro Phe Ser His Ser Lys Leu Arg Gln Ala Leu
    290                 295                 300
Ser Leu Val Leu Asn Lys Glu Ala Leu Ala Ser Leu Ala Phe Val Xaa
305                 310                 315                 320
Xaa Cys Lys Thr Ser Pro Ser Cys Thr Phe Ala His Leu Pro Arg Ala
                325                 330                 335
Ala Phe Leu
```

<210>254
<211>341
<212>PRT
<213>Chlamydia trachomatis
<400>254

```
Val Phe Ala Met Leu Thr Leu Gly Leu Glu Ser Ser Cys Asp Glu Thr
  1               5                  10                  15
Ser Cys Ser Leu Val Gln Asn Gly Lys Ile Leu Ala Asn Lys Ile Ala
            20                  25                  30
Ser Gln Asp Ile His Ala Ser Tyr Gly Gly Val Ile Pro Glu Leu Ala
        35                  40                  45
Ser Arg Ala His Leu Gln Thr Phe Pro Glu Leu Leu Thr Ala Ala Thr
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```
     50                  55                  60
Gln Ser Ala Gly Val Ser Leu Glu Asp Ile Glu Leu Ile Ser Val Ala
 65                  70                  75                  80
Asn Thr Pro Gly Leu Ile Gly Ala Leu Ser Ile Gly Val Asn Phe Ala
                 85                  90                  95
Lys Gly Leu Ala Ser Gly Leu Lys Arg Pro Leu Ile Gly Val Asn His
            100                 105                 110
Val Glu Ala His Leu Tyr Ala Ala Cys Met Glu Ala Pro Ala Thr Gln
        115                 120                 125
Phe Pro Ala Leu Gly Leu Ala Ile Ser Gly Ala His Thr Ser Leu Phe
    130                 135                 140
Leu Met Pro Asp Ala Thr Thr Phe Leu Leu Ile Gly Lys Thr Arg Asp
145                 150                 155                 160
Asp Ala Ile Gly Glu Thr Phe Asp Lys Val Ala Arg Phe Leu Gly Leu
                165                 170                 175
Pro Tyr Pro Gly Gly Gln Lys Leu Glu Glu Leu Ala Arg Glu Gly Asp
            180                 185                 190
Ala Asp Ala Phe Ala Phe Ser Pro Ala Arg Val Ser Gly Tyr Asp Phe
        195                 200                 205
Ser Phe Ser Gly Leu Lys Thr Ala Val Leu Tyr Ala Leu Lys Gly Asn
    210                 215                 220
Asn Ser Ser Ala Lys Ala Pro Phe Pro Glu Val Ser Glu Thr Gln Lys
225                 230                 235                 240
Arg Asn Ile Ala Ala Ser Phe Gln Lys Ala Val Phe Met Thr Ile Ala
                245                 250                 255
Gln Lys Leu Pro Asp Ile Val Lys Ala Phe Ser Cys Glu Ser Leu Ile
            260                 265                 270
Val Gly Gly Gly Val Ala Asn Asn Ser Tyr Phe Arg Arg Leu Leu Asn
        275                 280                 285
Gln Ile Cys Ser Leu Pro Ile Tyr Phe Pro Ser Ser Gln Leu Cys Ser
    290                 295                 300
Asp Asn Ala Ala Met Ile Ala Gly Leu Gly Glu Arg Leu Phe Cys Asn
305                 310                 315                 320
Arg Thr His Val Ser Lys Glu Val Ile Pro Cys Ala Arg Tyr Gln Trp
                325                 330                 335
Glu Ser Ala Cys Ser
            340
<210>255
<211>522
<212>PRT
<213>Chlamydia trachomatis
<400>255
Met Xaa Xaa Xaa Arg Arg Ala Trp Lys Glu Xaa Asn Xaa Asn Glu Glu
  1               5                  10                  15
Lys Leu Asp Val Ala Leu Thr Ser Gly Asn Leu Met Asp Ser Lys Thr
            20                  25                  30
Ser His Leu Asp Asp Glu Leu Cys Phe Lys Leu Glu Glu Ala Phe Asp
        35                  40                  45
Thr Leu Thr Ala Gly Glu His Ser Gln Asp Leu Thr Ser Ile Val Ser
    50                  55                  60
Val Tyr Asn Pro Ile Asp Leu Ala Tyr Ala Val Ser Cys Leu Pro Ser
 65                  70                  75                  80
Asp Ser Arg Ser Ile Leu Tyr Lys Asn Leu Asp Ser Ile Ala Ser Lys
                85                  90                  95
Ile Ala Phe Ile Ile Asn Thr Asp Ser Ala Ser Arg Trp Ala Ile Phe
            100                 105                 110
Arg Asn Leu Ser Asp Gly Glu Ile Cys Ala Leu Ile Glu Gln Met Pro
        115                 120                 125
Pro Asp Glu Ala Ile Trp Val Leu Asp Asp Ile Pro Asp Arg Arg Tyr
    130                 135                 140
Arg Arg Ile Leu Asp Leu Ile Asp Val Lys Lys Ala Leu Lys Ile Arg
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```
145                 150                 155                 160
Asp Leu Gln Lys His Gly Arg Asn Thr Ala Gly Arg Leu Met Thr Asn
                165                 170                 175
Glu Phe Phe Ala Phe Leu Met Glu Thr Thr Val Lys Glu Val Ala Thr
            180                 185                 190
Cys Ile Arg Asn Asn Pro Gly Ile Asp Leu Thr Arg Leu Val Phe Val
        195                 200                 205
Leu Asp Phe Lys Gly Glu Leu Gln Gly Phe Val Thr Asp Arg Ser Leu
    210                 215                 220
Ile Ile Ala Ser Pro Glu Met Pro Leu Lys Gln Ile Met Arg Pro Ile
225                 230                 235                 240
Glu His Lys Val Leu Ala Asp Thr Thr Arg Glu Glu Val Val Asp Leu
                245                 250                 255
Val Glu Arg Tyr Lys Val Ala Val Leu Pro Val Val Asp Glu Glu Asn
            260                 265                 270
Phe Leu Ile Gly Ala Ile Thr Tyr Glu Asp Val Val Glu Thr Ile Glu
        275                 280                 285
Asp Ile Ala Asp Glu Thr Ile Ala Arg Met Ala Gly Thr Thr Glu Asp
    290                 295                 300
Val Gly Tyr His Asp Cys His Val Val Gln Arg Phe Leu Leu Arg Ala
305                 310                 315                 320
Pro Trp Leu Leu Ile Thr Leu Cys Ala Gly Leu Val Ser Ala Ser Val
                325                 330                 335
Met Ala Tyr Phe Gln Lys Ile Ala Pro Thr Leu Leu Ala Met Val Ile
            340                 345                 350
Phe Phe Ile Pro Leu Val Asn Gly Leu Ser Gly Asn Val Gly Val Gln
        355                 360                 365
Cys Ser Thr Ile Leu Val Arg Ser Met Ala Thr Gly Thr Leu Ser Phe
    370                 375                 380
Gly Arg Arg Arg Glu Thr Ile Leu Lys Glu Met Ser Ile Gly Leu Leu
385                 390                 395                 400
Thr Gly Val Ala Leu Gly Ile Leu Cys Gly Leu Val Val Cys Cys Met
                405                 410                 415
Gly Cys Leu Gly Leu Gly Leu Phe Ala Thr Gly Gly Val Gln Leu Gly
            420                 425                 430
Val Thr Val Ser Val Gly Ile Leu Gly Ala Ser Leu Thr Ala Thr Thr
        435                 440                 445
Leu Gly Val Leu Ser Pro Phe Phe Phe Ala Lys Ile Gly Val Asp Pro
    450                 455                 460
Ala Leu Ala Ser Gly Pro Ile Val Thr Ala Leu Asn Asp Ile Val Ser
465                 470                 475                 480
Met Val Ile Phe Leu Leu Ile Thr Gly Thr Leu Asn Val Leu Phe Leu
                485                 490                 495
Gln Ile Val Gly Glu Ser Glu Asp Lys Gly Phe Leu Arg Ala Phe Phe
            500                 505                 510
Thr Met Ser Phe Leu Pro Leu Ser Leu Glu
        515                 520
<210>256
<211>361
<212>PRT
<213>Chlamydia trachomatis
<400>256
Arg Ser Gly Phe Val Ala Leu Arg Phe Glu Ile Leu His Gln Ser Lys
  1               5                  10                  15
Lys Ser Arg Ala Arg Val Gly Arg Ile Glu Thr Ala His Gly Tyr Ile
            20                  25                  30
Asp Thr Pro Ala Phe Val Pro Val Ala Thr Asn Gly Ala Leu Lys Gly
        35                  40                  45
Val Leu Asp His Ser Asn Ile Pro Leu Met Phe Cys Asn Thr Tyr His
    50                  55                  60
Leu Ile Val His Pro Gly Ala Glu Ala Ile Ala Ala Met Gly Gly Leu
```

```
 65                  70                  75                  80
His Gln Phe Ile Gly Arg Asn Ala Pro Ile Ile Thr Asp Ser Gly Gly
                85                  90                  95
Phe Gln Ile Phe Ser Leu Ala Tyr Gly Ser Val Ala Glu Glu Ile Lys
            100                 105                 110
Ser Cys Gly Lys Lys Lys Gly Gly Asn Thr Ile Ile Lys Val Asn Asp
        115                 120                 125
Asp Gly Val His Phe Lys Ser Tyr Arg Asp Gly Arg Lys Leu Phe Leu
    130                 135                 140
Ser Pro Glu Ile Ser Val Gln Ala Gln Lys Asp Leu Gly Ala Asp Ile
145                 150                 155                 160
Ile Leu Pro Leu Asp Glu Leu Leu Pro Phe His Ala Asp Pro Thr Tyr
                165                 170                 175
Phe His Gln Ser Ser Gln Arg Thr Tyr Val Trp Glu Lys Arg Ser Leu
            180                 185                 190
Asp Tyr His Leu Lys Asn Pro Gly Ile Gln Ser Met Tyr Gly Val Ile
        195                 200                 205
His Gly Gly Thr Phe Pro Asp Gln Arg Lys Leu Gly Cys Lys Phe Val
    210                 215                 220
Glu Asp Leu Pro Phe Asp Gly Ser Ala Ile Gly Gly Ser Leu Gly Lys
225                 230                 235                 240
Asn Leu Gln Asp Ile Val Glu Val Val Gly Val Thr Ala Ala Asn Leu
                245                 250                 255
Ser Ala Glu Arg Pro Arg His Leu Leu Gly Ile Gly Asp Leu Pro Ser
            260                 265                 270
Ile Trp Ala Thr Val Gly Phe Gly Ile Asp Ser Phe Asp Ser Ser Tyr
        275                 280                 285
Pro Thr Lys Ala Ala Arg His Gly Ser Gly Ile Leu Thr Ser Gln Gly
    290                 295                 300
Pro Leu Lys Ile Asn Asn Gln Arg Tyr Ser Ser Asp Leu Asn Pro Ile
305                 310                 315                 320
Glu Pro Gly Cys Ser Cys Leu Ala Cys Ser Gln Gly Ile Thr Arg Ala
                325                 330                 335
Tyr Leu Arg His Leu Phe Lys Val His Glu Pro Asn Ala Gly Ile Trp
            340                 345                 350
Ala Ser Ile His Asn Met His His Met
        355                 360
<210>257
<211>260
<212>PRT
<213>Chlamydia trachomatis
<400>257
Asp Ser Phe Cys Val Phe Ile Gly Phe Ser Ile Lys Pro Phe Ala Val
  1               5                  10                  15
Tyr Leu Phe Asp Leu Lys Lys Thr Gly Lys Glu Glu Phe Val Gln Ser
             20                  25                  30
Val Gly Gln Glu Ala Ser Gln Asn Thr Leu Ser Trp Thr Ile Arg Pro
         35                  40                  45
Arg Ile Pro Ser Ile Ile Gln Gly Ser Lys Glu Val Ser Leu Ala Leu
     50                  55                  60
Phe Val Leu Gly Thr Val Leu Ala Ile Val Gly Ala Cys Ala Ala Ala
 65                  70                  75                  80
Val Gly Gly Ala Phe Ser Val Cys Leu Gly Ala Leu Phe Leu Gly Gly
                85                  90                  95
Val Val Leu Ala Thr Gly Leu Leu Leu Ala Val Leu Glu Phe Cys His
            100                 105                 110
Ile Arg Ser Ser Arg Glu Lys Tyr Val Ile Leu Thr Lys Gln Asp Leu
        115                 120                 125
Phe Lys Glu Pro Val Ile Gln Glu Glu Gln Ala Thr Pro Leu Ile Glu
    130                 135                 140
Glu Ala Ser Tyr Thr Cys Glu Pro Gly Ile Pro Leu Ser Gly Pro Glu
```

Sequence Listing - 4.1

```
145                 150                 155                 160
Glu Val Gln Gln Glu Arg Pro Val Ile Leu Gln Lys Asp Leu Asp Leu
                165                 170                 175
Ser His Val Pro Lys Tyr Ile Ala Val Gly Ser His Val Val Glu Leu
            180                 185                 190
Val Lys Ala Gly Lys Ile Gly Arg Asn Gly Glu Leu Leu Leu Glu Glu
        195                 200                 205
Gly Ile Asp Thr Asp Gln Asn Phe Val Arg Arg Ala Lys Glu Ala Gly
    210                 215                 220
Ser Ile Arg Gln Arg Arg Glu Val Val Arg Leu Asp Gly Phe Cys Cys
225                 230                 235                 240
Lys Val Leu Pro Lys Thr Ser Lys Ser Glu Ser Ile Asn Asp Leu Val
                245                 250                 255
Ser Asn Asp Cys
            260
```

<210>258
<211>136
<212>PRT
<213>Chlamydia trachomatis

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<400>258
Glu Pro Ser Ser Xaa Ala Phe Cys Glu Gly Arg Cys Ala Cys Ala Tyr
  1                 5                  10                  15
Arg Arg Ser Val Val Ser Phe Tyr Pro Gln Asn Leu Pro Ser Phe Arg
            20                  25                  30
Arg Arg Lys Pro Ser Arg Thr Asp Ser Pro Ile Lys His Ala Lys His
        35                  40                  45
Phe Leu Arg Asp His Leu Ser His Leu Arg Lys Ile Leu Ala Gly Lys
    50                  55                  60
Pro Gln Glu Val Ile Glu Ala Trp Tyr Glu Ile Leu Gly Lys Lys Tyr
65                  70                  75                  80
Asn Gly Met Thr Gln Ala Ile Gly Leu Lys Asp Gly Ile Leu Ser Ile
                85                  90                  95
Lys Val Arg Asn Ala Ser Leu Tyr Ala Val Leu Lys Gln Ser Ser Gln
            100                 105                 110
Lys Glu Leu Ile Ser Arg Ile His Ser Ala Val Pro Gly Ala Lys Val
        115                 120                 125
Lys Glu Ile Arg Phe Leu Leu Gly
    130                 135
```

<210>259
<211>804
<212>PRT
<213>Chlamydia trachomatis

```
<400>259
Met Asp Ala Gln Glu Lys Lys Tyr Asp Ala Ser Ala Ile Thr Val Leu
  1                 5                  10                  15
Glu Gly Leu Gln Ala Val Arg Glu Arg Pro Gly Met Tyr Ile Gly Asp
            20                  25                  30
Thr Gly Val Thr Gly Leu His His Leu Val Tyr Glu Val Val Asp Asn
        35                  40                  45
Ser Ile Asp Glu Ala Met Ala Gly Phe Cys Thr Glu Val Val Val Arg
    50                  55                  60
Ile Leu Glu Asp Gly Gly Ile Ser Ile Ser Asp Asn Gly Arg Gly Ile
65                  70                  75                  80
Pro Ile Gln Ile His Glu Lys Glu Ser Ala Lys Gln Gly Arg Glu Ile
                85                  90                  95
Ser Ala Leu Glu Val Val Leu Thr Val Leu His Ala Gly Gly Lys Phe
            100                 105                 110
Asp Lys Asp Ser Tyr Lys Val Ser Gly Gly Leu Xaa Gly Val Gly Val
        115                 120                 125
Ser Cys Val Asn Ala Leu Ser Glu Lys Phe Ile Ala Lys Val Phe Lys
    130                 135                 140
```

```
Asp Gly Gln Ala Tyr Ser Met Glu Phe Ser Arg Gly Ala Pro Leu Thr
145                 150                 155                 160
Thr Leu Gln Val Leu Gly Pro Thr Asp Lys Arg Gly Thr Glu Val Leu
                165                 170                 175
Phe Tyr Pro Asp Pro Ala Ile Phe Ser Thr Cys Val Phe Asp Arg Ala
            180                 185                 190
Ile Leu Met Lys Arg Leu Arg Glu Leu Ala Phe Leu Asn Arg Gly Ala
        195                 200                 205
Thr Ile Val Phe Glu Asp Asp Arg Asp Thr Gly Phe Asp Lys Val Val
    210                 215                 220
Phe Phe Tyr Glu Gly Gly Ile Gln Ser Phe Val Ser Tyr Leu Asn Gln
225                 230                 235                 240
Asn Lys Glu Ile Leu Phe Pro Asn Pro Ile Tyr Ile Gln Gly Ser Arg
                245                 250                 255
Pro Gly Asp Asp Gly Asp Ile Glu Phe Glu Ala Ala Leu Gln Trp Asn
            260                 265                 270
Ser Gly Tyr Ser Glu Leu Ile Tyr Ser Tyr Ala Asn Asn Ile Pro Thr
        275                 280                 285
Arg Gln Gly Gly Thr His Leu Thr Gly Phe Ser Thr Ala Leu Thr Arg
    290                 295                 300
Ala Val Asn Ser Tyr Ile Lys Ala His Asn Leu Ser Lys Ser Asp Lys
305                 310                 315                 320
Leu Ser Leu Thr Gly Glu Asp Ile Lys Glu Gly Leu Val Ala Ile Val
                325                 330                 335
Ser Val Lys Val Pro Asn Pro Gln Phe Glu Gly Gln Thr Lys Gln Lys
            340                 345                 350
Leu Gly Asn Ser Asp Val Gly Ser Val Ser Gln Gln Ile Ser Gly Glu
        355                 360                 365
Val Leu Thr Thr Phe Phe Glu Glu Asn Thr Gln Ile Ala Lys Thr Ile
    370                 375                 380
Val Asp Lys Val Phe Val Ala Ala Gln Ala Arg Glu Ala Ala Lys Arg
385                 390                 395                 400
Ala Arg Glu Leu Thr Phe Arg Lys Ser Ala Leu Asp Ser Ala Arg Leu
                405                 410                 415
Pro Gly Lys Leu Ile Asp Cys Leu Glu Lys Asp Pro Glu Lys Cys Glu
            420                 425                 430
Met Tyr Ile Val Glu Gly Asp Ser Ala Gly Gly Ser Ala Lys Gln Gly
        435                 440                 445
Arg Asp Arg Arg Phe Gln Ala Ile Leu Pro Ile Arg Gly Lys Ile Leu
    450                 455                 460
Asn Val Glu Lys Ala Arg Leu Gln Lys Val Phe Gln Asn Gln Glu Ile
465                 470                 475                 480
Gly Ser Ile Ile Ala Ala Leu Gly Cys Gly Ile Gly Lys Asp Asn Phe
                485                 490                 495
Asn Leu Ser Lys Leu Arg Tyr Lys Arg Ile Ile Ile Met Thr Asp Ala
            500                 505                 510
Asp Val Asp Gly Ser His Ile Arg Thr Leu Leu Leu Thr Phe Phe Tyr
        515                 520                 525
Arg His Met Ser Ala Leu Ile Glu Asn Glu Cys Val Tyr Ile Ala Gln
    530                 535                 540
Pro Pro Leu Tyr Arg Val Ser Lys Lys Lys Asp Phe Arg Tyr Ile Leu
545                 550                 555                 560
Ser Glu Lys Glu Met Asp Gly Tyr Leu Leu Asn Leu Gly Thr Lys Glu
                565                 570                 575
Ser Gln Ile Val Phe Asp Asp Thr Leu Arg Asp Leu Arg Gly Glu Ala
            580                 585                 590
Leu Glu Thr Phe Val Asn Leu Ile Leu Glu Val Glu Ser Phe Ile Val
        595                 600                 605
Ser Leu Glu Lys Lys Ala Ile Pro Phe Ser Glu Phe Leu Asp Met Phe
    610                 615                 620
Arg Asp Gly Ala Tyr Pro Leu Tyr Tyr Tyr Pro Pro Glu Ser Gly Lys
```

US 2005/0142141 A1 Jun. 30, 2005

625 630 635 640
Gln Gly Gly Ser Tyr Leu Tyr Ser His Glu Glu Lys Glu Ala Ala Ile
645 650 655
Ala Ala Asn Glu Glu Ser Ala Ser Arg Ile Leu Glu Leu Tyr Lys Gly
660 665 670
Ser Val Leu Glu Glu Leu Gln Arg Asp Leu Gly Asp Tyr Gly Tyr Asp
675 680 685
Ile Arg Asn Tyr Leu His Pro Lys Gly Ser Gly Ile Thr Val Ser Thr
690 695 700
Glu Asp Pro Lys Ile Ser Pro Tyr Val Cys Tyr Thr Leu Lys Glu Val
705 710 715 720
Ile Asp Tyr Leu Lys Gly Leu Gly Arg Lys Gly Ile Glu Ile Gln Arg
725 730 735
Tyr Lys Gly Leu Gly Glu Met Asn Ala Asp Gln Leu Trp Asp Thr Thr
740 745 750
Met Asn Pro Glu Gln Arg Thr Leu Val Arg Val Ser Leu Lys Asp Ala
755 760 765
Val Glu Ala Asp His Ile Phe Thr Met Leu Met Gly Glu Glu Val Pro
770 775 780
Pro Arg Arg Glu Phe Ile Lys Ser His Ala Leu Ser Ile Arg Met Asn
785 790 795 800
Asn Leu Asp Ile

<210>260
<211>836
<212>PRT
<213>Chlamydia trachomatis
<400>260
Met Leu Asn Lys Glu Glu Ile Ile Val Pro Lys Asn Leu Glu Glu Glu
1 5 10 15
Met Lys Glu Ser Tyr Leu Arg Tyr Ser Met Ser Val Ile Ile Ser Arg
20 25 30
Ala Leu Pro Asp Ala Arg Asp Gly Leu Lys Pro Ser Gln Arg Arg Ile
35 40 45
Leu Tyr Ala Met Lys Gln Leu Asn Leu Thr Pro Gly Val Lys His Arg
50 55 60
Lys Cys Ala Lys Ile Cys Gly Asp Thr Ser Gly Asp Tyr His Pro His
65 70 75 80
Gly Glu Ser Val Ile Tyr Pro Thr Leu Val Arg Met Ala Gln Asp Trp
85 90 95
Ala Met Arg Tyr Pro Leu Val Asp Gly Gln Gly Asn Phe Gly Ser Ile
100 105 110
Asp Gly Asp Pro Ala Ala Ala Met Arg Tyr Thr Glu Ala Arg Leu Thr
115 120 125
His Ser Ala Ile Phe Leu Leu Glu Asp Leu Asp Lys Asp Thr Val Asp
130 135 140
Met Val Pro Asn Tyr Asp Glu Thr Lys Tyr Glu Pro Val Val Phe Pro
145 150 155 160
Ser Lys Phe Pro Asn Leu Leu Cys Asn Gly Ser Ser Gly Ile Ala Val
165 170 175
Gly Met Ala Thr Asn Ile Pro Pro His Asn Leu Gly Glu Leu Ile Glu
180 185 190
Ala Thr Leu Leu Val Leu Ala Asn Ser Gln Thr Ser Ile Glu Asp Ile
195 200 205
Leu Glu Val Met Pro Gly Pro Asp Phe Pro Thr Gly Gly Ile Ile Cys
210 215 220
Gly Thr Glu Gly Ile Arg Ser Thr Tyr Tyr Thr Gly Arg Gly Lys Leu
225 230 235 240
Arg Leu Arg Ala Arg Met His Val Glu Glu Asn Ser Asp Lys Gln Arg
245 250 255
Glu Asn Ile Ile Leu Thr Glu Met Pro Tyr Asn Val Asn Lys Ser Pro

```
                260                 265                 270
Leu Ile Glu Gln Ile Ala Glu Leu Ile Asn Glu Lys Thr Leu Thr Gly
        275                 280                 285
Ile Ser Asp Val Arg Asp Glu Ser Asp Lys Asp Gly Asn Arg Val Val
    290                 295                 300
Leu Glu Leu Lys Lys Gly Glu Ser Ser Glu Val Val Ile Asn Arg Leu
305                 310                 315                 320
Tyr Lys Phe Thr Asp Val Gln Val Thr Phe Gly Ala Asn Met Leu Ala
                325                 330                 335
Leu Asp Lys Asn Leu Pro Arg Thr Met Asn Ile His Arg Met Ile Ser
            340                 345                 350
Ala Trp Ile Arg His Arg Met Asp Val Ile Arg Arg Arg Thr Arg Tyr
        355                 360                 365
Glu Leu Asn Lys Ala Glu Ala Arg Ala His Ile Leu Glu Gly Phe Leu
    370                 375                 380
Lys Ala Leu Ser Cys Met Asp Glu Val Val Lys Thr Ile Arg Glu Ser
385                 390                 395                 400
Ser Asn Lys Glu His Ala Lys Gln Gln Leu Val Glu Leu Phe Ser Phe
                405                 410                 415
Ser Glu Ala Gln Ala Leu Ala Ile Leu Glu Leu Arg Leu Tyr Gln Leu
            420                 425                 430
Thr Gly Leu Glu Ala Asp Lys Val Gln Lys Glu Tyr Ser Glu Leu Leu
        435                 440                 445
Glu Lys Ile Thr Tyr Tyr Arg Lys Val Leu Ala Glu Glu Glu Leu Val
    450                 455                 460
Lys Asp Ile Ile Arg Glu Glu Leu Gln Glu Leu His Lys Val His Lys
465                 470                 475                 480
Thr Pro Arg Arg Thr Lys Ile Glu Met Asp Thr Gly Asp Val Arg Asp
                485                 490                 495
Ile Glu Asp Ile Ile Ser Asp Glu Ser Val Ile Ile Thr Ile Ser Gly
            500                 505                 510
Asp Asp Tyr Val Lys Arg Met Pro Val Lys Val Phe Arg Glu Gln Lys
        515                 520                 525
Arg Gly Gly Gln Gly Val Thr Gly Phe Asp Met Lys Lys Gly Ser Asp
    530                 535                 540
Phe Leu Lys Ala Val Tyr Ser Ala Ser Thr Lys Asp Tyr Leu Leu Ile
545                 550                 555                 560
Phe Thr Asn Phe Gly Gln Cys Tyr Trp Leu Lys Val Trp Gln Leu Pro
                565                 570                 575
Glu Gly Glu Arg Arg Ala Lys Gly Lys Pro Ile Ile Asn Phe Leu Glu
            580                 585                 590
Gly Ile Arg Pro Gly Glu Gln Val Ala Ala Val Leu Asn Val Lys Arg
        595                 600                 605
Phe Glu Gln Gly Glu Tyr Leu Phe Leu Ala Thr Lys Lys Gly Val Val
    610                 615                 620
Lys Lys Val Ser Leu Asp Ala Phe Gly Ser Pro Arg Lys Lys Gly Ile
625                 630                 635                 640
Arg Ala Leu Glu Ile Asp Asp Gly Asp Glu Leu Ile Ala Ala Arg His
                645                 650                 655
Ile Ala Asn Asp Glu Glu Lys Val Met Leu Phe Thr Arg Leu Gly Met
            660                 665                 670
Ala Val Arg Phe Pro His Asp Lys Val Arg Pro Met Gly Arg Ala Ala
        675                 680                 685
Arg Gly Val Arg Gly Val Ser Leu Lys Asn Glu Gln Asp Phe Val Val
    690                 695                 700
Ser Cys Gln Val Val Thr Glu Asp Gln Ser Val Leu Val Val Cys Asp
705                 710                 715                 720
Asn Gly Phe Gly Lys Arg Ser Leu Val Cys Asp Phe Arg Glu Thr Asn
                725                 730                 735
Arg Gly Ser Val Gly Val Arg Ser Ile Val Ile Asn Gln Arg Asn Gly
            740                 745                 750
```

Asp Val Leu Gly Ala Ile Ser Val Thr Asp Cys Asp Ser Ile Leu Leu
755 760 765
Met Ser Ala Gln Gly Gln Ala Ile Arg Ile Asn Met Gln Asp Val Arg
770 775 780
Val Met Gly Arg Ala Thr Gln Gly Val Arg Leu Val Asn Leu Arg Glu
785 790 795 800
Gly Asp Thr Leu Val Ala Met Glu Lys Leu Ser Ile Asn Thr Glu Ser
805 810 815
Val Glu Thr Glu Glu Asn Leu Ala Ala Ser Val Gln Ser Gly Gln Asp
820 825 830
Thr Ile Glu Glu
835

<210>261
<211>206
<212>PRT
<213>Chlamydia trachomatis
<400>261
Arg Asn Ser Val Phe Ile Val Val Glu Gly Gly Glu Gly Ala Gly Lys
1 5 10 15
Thr Gln Phe Ile Gln Ala Leu Ser Lys Arg Leu Ile Glu Glu Gly Arg
20 25 30
Glu Ile Val Thr Thr Arg Glu Pro Gly Gly Cys Ser Leu Gly Asp Ser
35 40 45
Val Arg Gly Leu Leu Leu Asp Pro Glu Gln Lys Ile Ser Pro Tyr Ala
50 55 60
Glu Leu Leu Leu Phe Leu Ala Ala Arg Ala Gln His Ile Gln Glu Lys
65 70 75 80
Ile Ile Pro Ala Leu Lys Ser Gly Lys Thr Val Ile Ser Asp Arg Phe
85 90 95
His Asp Ser Thr Ile Val Tyr Gln Gly Ile Ala Gly Gly Leu Gly Glu
100 105 110
Ser Phe Val Thr Asn Leu Cys Tyr His Val Val Gly Asp Lys Pro Phe
115 120 125
Leu Pro Asp Ile Ile Phe Leu Leu Asp Ile Pro Ala Arg Glu Gly Leu
130 135 140
Leu Arg Lys Ala Arg Gln Lys His Leu Asp Lys Phe Glu Gln Lys Pro
145 150 155 160
Gln Ile Phe His Gln Ser Val Arg Glu Gly Phe Leu Ala Leu Ala Glu
165 170 175
Lys Ala Pro Asp Arg Tyr Lys Val Leu Asp Ala Leu Leu Pro Thr Glu
180 185 190
Ala Ser Val Asp Gln Ala Leu Leu Gln Ile Arg Ala Leu Ile
195 200 205

<210>262
<211>296
<212>PRT
<213>Chlamydia trachomatis
<400>262
Tyr Arg Gln Gly Glu Val Met Glu Ser Ala Ala Trp Glu Ala Leu Ile
1 5 10 15
Gln Arg Val Arg Asp Gln Lys Leu Pro Ser Ala Ile Ile Leu His Gly
20 25 30
Gln Asp Leu Ser Asn Leu Ser Ala Arg Ala Tyr Glu Tyr Ala Ser Leu
35 40 45
Ile Ile Lys Glu Thr Leu Pro Glu Ala Ala Tyr Lys Leu Ala Asn Lys
50 55 60
Leu His Pro Asp Ile His Glu Tyr Ser Pro Gln Gly Lys Gly Arg Leu
65 70 75 80
His Thr Ile Glu Thr Pro Arg Ala Ile Arg Lys Asp Ile Trp Ile His
85 90 95
Pro Tyr Glu Ser Pro Tyr Lys Ile Tyr Ile Ile Tyr Glu Ala Asp Arg

```
            100                 105                 110
Ile Thr Leu Asp Ala Ile Ser Ala Phe Leu Lys Leu Leu Glu Asp Pro
        115                 120                 125
Pro Gln Tyr Gly Met Phe Ile Leu Val Ser Ala Leu Pro Gln Arg Leu
    130                 135                 140
Pro Pro Thr Ile Arg Ser Arg Cys Val Ser Phe His Ile Pro Met Glu
145                 150                 155                 160
Glu Lys Thr Leu Val Ser Lys Lys Asp Ile Ala Phe Leu Ile Gly Leu
                165                 170                 175
Ala Gln Gly Lys Glu Ser Val Thr Arg Ile Gly Ser Gln Val Lys Gly
            180                 185                 190
Thr Ala Asp Glu Asp Lys Gln Val Leu Arg Asp Lys Thr Lys Ala Met
        195                 200                 205
Leu Thr Val Leu Leu Gln Leu Phe Arg Asp Arg Phe Leu Leu Ala Lys
    210                 215                 220
Lys Val Pro Val Ser Leu Leu Ala Tyr Pro Asp Leu Leu Asn Glu Ile
225                 230                 235                 240
Lys Thr Met Pro Val Tyr Pro Leu Glu Glu Val Leu Ser Ile Ile Thr
                245                 250                 255
Arg Ala Val Gln Ala Leu Asp Ser Tyr Ser Ser Ala Pro Ser Cys Leu
            260                 265                 270
Glu Trp Ile Cys Leu Gln Leu Trp Ser Phe Lys Asn Arg Gln Gln Met
        275                 280                 285
Ala Ile Arg Asn Arg Arg Arg Ser
    290                 295
<210>263
<211>262
<212>PRT
<213>Chlamydia trachomatis
<400>263
Leu Gln Glu Val Ile Tyr Met Ala Thr Leu Ile Ser Leu Asn Asp Ala
  1               5                  10                  15
Asn Arg Met Leu Ile Ala Asp Ser Gln Glu Glu Phe Leu Gln Ile Ala
            20                  25                  30
Cys Tyr Asp Trp Ile Ser Thr Ala Asn Lys Ala Ile His Lys Arg Gly
        35                  40                  45
Ala Phe Tyr Val Ala Leu Ser Gly Gly Lys Thr Pro Leu Gln Ile Phe
    50                  55                  60
Gln Glu Ile Val Lys Lys Arg Ala Ala Ile Ser Asp Cys Ser Lys Ile
65                  70                  75                  80
Val Val Phe Trp Gly Asp Glu Arg Ala Asn Glu Asp Val Glu Ala Gly
                85                  90                  95
Ser Asn Tyr Leu Lys Ala Met Asp Ile Leu Lys Gly Leu Arg Ile Pro
            100                 105                 110
Glu Asp Gln Ile Phe Arg Met Asp Thr Ala Asp Pro Lys Gly Asp Glu
        115                 120                 125
Ala Tyr Glu Ala Leu Ile Gln Lys Tyr Val Pro Asp Ala Ile Phe Asp
    130                 135                 140
Met Val Met Leu Gly Val Gly Glu Asp Gly His Thr Leu Ser Leu Phe
145                 150                 155                 160
Pro Glu Thr Gln Ala Leu Glu Glu Lys Glu Arg Phe Val Val Phe Asn
                165                 170                 175
Glu Val Pro Gln Leu His Thr Arg Arg Met Thr Leu Thr Phe Pro Ile
            180                 185                 190
Val Arg Gln Ala Arg His Leu Val Ala Tyr Val Gln Gly Glu Asn Lys
        195                 200                 205
Gln Asp Leu Phe His Lys Leu Val His Pro Leu Gly Arg Asp Thr Phe
    210                 215                 220
Pro Ile Glu Arg Val Gly Thr Pro Leu Asn Pro Val Gln Trp Val Leu
225                 230                 235                 240
Ser Ser Asp Ser Cys Arg Lys Thr Asp Leu Ala Asp Ile Pro Ala Asp
```

245 250 255

Cys Lys Leu Glu Met Phe
260

<210>264
<211>171
<212>PRT
<213>Chlamydia trachomatis
<400>264

Lys Leu Phe Ile Asp Asn Pro Arg Trp Lys Gly Val Pro Phe Tyr Leu
1 5 10 15
Gln Ala Gly Lys Arg Leu Pro Lys Arg Thr Thr Asp Ile Ala Val Ile
20 25 30
Phe Lys Lys Ser Ser Tyr Asn Leu Phe Asn Ala Glu Asn Cys Pro Leu
35 40 45
Cys Pro Leu Asp Asn Asp Leu Leu Ile Ile Arg Ile Gln Pro Asp Glu
50 55 60
Gly Val Ala Leu Gln Phe Asn Cys Lys Val Pro Gly Thr Asn Lys Leu
65 70 75 80
Val Arg Pro Val Lys Met Asp Phe Arg Tyr Asp Ser Tyr Phe Asn Thr
85 90 95
Val Thr Pro Glu Ala Tyr Glu Arg Leu Leu Cys Asp Cys Ile Leu Gly
100 105 110
Asp Arg Thr Leu Phe Thr Ser Asn Glu Glu Val Leu Ala Ser Trp Glu
115 120 125
Leu Phe Ser Pro Leu Leu Glu Lys Trp Ser Gln Val His Pro Ile Phe
130 135 140
Pro Asn Tyr Met Ala Gly Ser Leu Arg Pro Gln Glu Ala Asp Glu Leu
145 150 155 160
Leu Ser Arg Asp Gly Lys Ala Trp Arg Pro Tyr
165 170

<210>265
<211>340
<212>PRT
<213>Chlamydia trachomatis
<400>265

Ile Leu Gly Cys Thr Leu Glu Glu Ile Lys Asp Phe Gly Pro Thr Leu
1 5 10 15
Pro Ala Cys Pro Pro Cys Ile Val Val Ile Phe Gly Ala Thr Gly Asp
20 25 30
Leu Thr Ser Arg Lys Leu Phe Pro Ala Leu Tyr Asn Leu Thr Lys Glu
35 40 45
Gly Arg Leu Ser Glu Asn Phe Val Cys Val Gly Phe Ala Arg Arg Pro
50 55 60
Lys Ser His Glu Gln Phe Arg Glu Glu Met Lys Leu Ala Val Gln His
65 70 75 80
Phe Ser His Ser Ser Glu Ile Asp Ile Arg Val Trp Glu Ser Leu Glu
85 90 95
Asn Arg Ile Phe Tyr His Gln Ala Asn Phe Ser Asp Ala Glu Gly Tyr
100 105 110
Ser Ala Leu Lys Ala Tyr Leu Glu Gln Leu Asp Gln Gln Tyr Gly Thr
115 120 125
Gln Gly Asn Arg Leu Phe Tyr Leu Ser Thr Pro Pro Asp Tyr Phe Gln
130 135 140
Glu Ile Ile Arg Asn Leu Asn Arg His Gln Leu Phe Tyr His Glu Gln
145 150 155 160
Gly Ala Gln Gln Pro Trp Ser Arg Leu Ile Ile Glu Lys Pro Phe Gly
165 170 175
Val Asn Leu Glu Thr Ala Arg Glu Leu Gln Gln Cys Ile Asp Ala Asn
180 185 190
Ile Asp Glu Glu Ser Val Tyr Arg Ile Asp His Tyr Leu Gly Lys Glu
195 200 205

```
Thr Val Gln Asn Ile Leu Thr Ile Arg Phe Ala Asn Thr Leu Phe Glu
    210                 215                 220
Ser Cys Trp Asn Ser Gln Tyr Ile Asp His Val Gln Ile Ser Val Ser
225                 230                 235                 240
Glu Ser Ile Gly Ile Gly Ser Arg Gly Asn Phe Phe Glu Lys Ser Gly
                245                 250                 255
Met Leu Arg Asp Met Val Gln Asn His Leu Thr Gln Leu Leu Cys Leu
            260                 265                 270
Leu Thr Met Glu Pro Pro Ser Glu Phe Ser Ser Glu Glu Ile Lys Lys
        275                 280                 285
Glu Lys Ile Lys Ile Leu Lys Lys Ile Leu Pro Ile Arg Glu Glu Asp
    290                 295                 300
Ala Val Arg Gly Gln Tyr Gly Glu Gly Ile Val Gln Asp Val Ser Val
305                 310                 315                 320
Leu Gly Tyr Arg Glu Glu Glu Asn Val Asp Pro Asn Ser Ser Val Glu
                325                 330                 335
Thr Tyr Val Ala
            340
<210>266
<211>85
<212>PRT
<213>Chlamydia trachomatis
<400>266
Phe Ser Gly Asn Pro Leu Pro Met Gln Lys Ala Tyr Ala Ser Ser Val
  1                 5                  10                  15
Gln Ser Glu Ile Gln Glu Leu Ala Ala Leu Ile Gln Glu Met Thr Ala
            20                  25                  30
Ile Glu Val Ile Leu Trp Asp Glu Arg Leu Ser Ser Ala Gln Ala Glu
        35                  40                  45
Arg Met Leu Lys Ser Asp Cys Gly Leu Asn Arg Lys Gln Arg Lys Asn
    50                  55                  60
Ser Ser Asp Ser Leu Ala Ala Thr Leu Ile Leu Ser Ser Phe Leu Asp
65                  70                  75                  80
Ser Arg Lys Leu Tyr
                85
<210>267
<211>102
<212>PRT
<213>Chlamydia trachomatis
<400>267
Met Asn Ile Ala Lys Gln Gln Gln Ala Phe Leu Gly Ile Asp Tyr Gly
  1                 5                  10                  15
Lys Lys Arg Ile Gly Leu Ala Phe Ala Ser Ser Pro Leu Leu Ile Pro
            20                  25                  30
Leu Pro Ile Gly Asn Val Glu Ala Arg Ser Ser Leu Thr Leu Thr Ala
        35                  40                  45
Gln Ala Leu Val Ser Ile Ile Lys Glu Arg Ala Val Thr Thr Val Val
    50                  55                  60
Phe Gly Glu Ser Ile Thr Tyr Ala Lys Ser Leu Cys Phe Lys Arg Ala
65                  70                  75                  80
Ile Arg Asn Ser Arg Thr Ser Arg Thr His Pro Arg Asn Asp Cys Tyr
                85                  90                  95
Arg Ser His Ser Leu Gly
            100
<210>268
<211>539
<212>PRT
<213>Chlamydia trachomatis
<400>268
Met Ser Phe Lys Ser Ile Phe Leu Thr Gly Gly Val Val Ser Ser Leu
  1                 5                  10                  15
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Gly Lys Gly Leu Thr Ala Ala Ser Leu Ala Leu Leu Leu Glu Arg Gln
                20                  25                  30
Asp Leu Lys Val Ala Met Leu Lys Leu Asp Pro Tyr Leu Asn Val Asp
            35                  40                  45
Pro Gly Thr Met Asn Pro Tyr Glu His Gly Glu Val Tyr Val Thr Asp
        50                  55                  60
Asp Gly Val Glu Thr Asp Leu Asp Leu Gly His Tyr His Arg Phe Ser
65                  70                  75                  80
Ser Val Gln Leu Ser Lys Tyr Ser Ile Ala Thr Ser Gly Gln Ile Tyr
                85                  90                  95
Thr Lys Val Leu Thr Lys Glu Arg Asn Gly Glu Phe Leu Gly Ser Thr
            100                 105                 110
Val Gln Val Ile Pro His Val Thr Asn Glu Ile Ile Asn Val Ile Gln
        115                 120                 125
Ser Cys Ala Asp His His Lys Pro Asp Ile Leu Ile Val Glu Ile Gly
    130                 135                 140
Gly Thr Ile Gly Asp Ile Glu Ser Leu Pro Phe Leu Glu Ala Val Arg
145                 150                 155                 160
Gln Phe Arg Cys Glu His Pro Gln Asp Cys Leu Ser Ile His Met Thr
                165                 170                 175
Tyr Val Pro Tyr Leu Arg Ala Ala Lys Glu Ile Lys Thr Lys Pro Thr
            180                 185                 190
Gln His Ser Val Gln Asn Leu Arg Ser Ile Gly Ile Ser Pro Asp Val
        195                 200                 205
Ile Leu Cys Arg Ser Glu Ala Pro Leu Ser Thr Glu Val Lys Arg Lys
    210                 215                 220
Ile Ser Leu Phe Cys Asn Val Pro Glu His Ala Val Phe Asn Ala Ile
225                 230                 235                 240
Asp Leu Glu Arg Ser Ile Tyr Glu Met Pro Leu Leu Leu Ala Lys Glu
                245                 250                 255
Asn Ile Ser Asp Phe Leu Leu Asn Lys Leu Gly Phe Ser Pro Lys Pro
            260                 265                 270
Leu Asp Leu Ser Asp Trp Gln Asp Leu Val Glu Ala Leu Cys Asp Lys
        275                 280                 285
Glu Arg Gln His Val Arg Ile Gly Leu Val Gly Lys Tyr Leu Glu His
    290                 295                 300
Lys Asp Ala Tyr Lys Ser Val Phe Glu Ala Leu Phe His Ala Ser Val
305                 310                 315                 320
Pro Ala Asn Cys Ser Leu Glu Leu Val Pro Ile Ala Pro Glu Ser Glu
                325                 330                 335
Asp Leu Leu Glu Gln Leu Ser Gln Cys Asp Gly Cys Leu Ile Pro Gly
            340                 345                 350
Gly Phe Gly Thr Arg Ser Trp Glu Gly Lys Ile Ser Ala Ala Arg Tyr
        355                 360                 365
Cys Arg Glu Gln Asn Ile Pro Cys Phe Gly Ile Cys Leu Gly Met Gln
    370                 375                 380
Ala Leu Val Val Glu Tyr Ala Arg Asn Val Leu Asp Lys Pro Leu Ala
385                 390                 395                 400
Asn Ser Met Glu Met Asn Pro Glu Thr Pro Asp Pro Val Val Cys Met
                405                 410                 415
Met Glu Gly Gln Asp Ser Val Val Lys Gly Gly Thr Met Arg Leu Gly
            420                 425                 430
Ala Tyr Pro Cys Arg Ile Ala Pro Gly Ser Leu Ala Ser Ala Ala Tyr
        435                 440                 445
Lys Thr Asp Leu Val Gln Glu Arg His Arg His Arg Tyr Glu Val Asn
    450                 455                 460
Pro Ser Tyr Ile Glu Arg Leu Glu Glu His Gly Leu Lys Ile Ala Gly
465                 470                 475                 480
Val Cys Pro Leu Gly Glu Leu Cys Glu Ile Val Glu Ile Pro Asn His
                485                 490                 495
Arg Trp Met Leu Gly Val Gln Phe His Pro Glu Phe Leu Ser Lys Leu
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            500                 505                 510
Ala Lys Pro His Pro Leu Phe Ile Glu Phe Ile Arg Ala Ala Lys Ala
        515                 520                 525
Tyr Ser Leu Glu Lys Ala Asn His Glu His Arg
    530                 535
<210>269
<211>266
<212>PRT
<213>Chlamydia trachomatis
<400>269
Leu Leu Leu Arg Trp Asp Val Ile Asn Gly Gly Ala Met Phe Ala Phe
  1               5                  10                  15
Leu Thr Ser Lys Lys Val Gly Ile Leu Pro Ser Arg Trp Gly Ser Ser
            20                  25                  30
Arg Phe Pro Gly Lys Pro Leu Ala Lys Ile Leu Gly Lys Thr Leu Val
        35                  40                  45
Gln Arg Ser Tyr Glu Asn Ala Leu Ser Ser Gln Ser Leu Asp Cys Val
    50                  55                  60
Val Val Ala Thr Asp Asp Gln Arg Ile Phe Asp His Val Val Glu Phe
65                  70                  75                  80
Gly Gly Leu Cys Val Met Thr Ser Thr Ser Cys Ala Asn Gly Thr Glu
                85                  90                  95
Arg Val Glu Glu Val Val Ser Arg His Phe Pro Gln Ala Glu Ile Val
            100                 105                 110
Val Asn Ile Gln Gly Asp Glu Pro Cys Leu Ser Pro Thr Val Ile Asp
        115                 120                 125
Gly Leu Val Ser Thr Leu Glu Asn Asn Pro Ala Ala Asp Met Val Thr
    130                 135                 140
Pro Val Thr Glu Thr Thr Asp Pro Glu Ala Ile Leu Thr Asp His Lys
145                 150                 155                 160
Val Lys Cys Val Phe Asp Lys Asn Gly Lys Ala Leu Tyr Phe Ser Arg
                165                 170                 175
Ser Ala Ile Pro His Asn Phe Lys His Pro Thr Pro Ile Tyr Leu His
            180                 185                 190
Ile Gly Val Tyr Ala Phe Arg Lys Ala Phe Leu Ser Glu Tyr Val Lys
        195                 200                 205
Ile Pro Pro Ser Ser Leu Ser Leu Ala Glu Asp Leu Glu Gln Leu Arg
    210                 215                 220
Val Leu Glu Thr Gly Arg Ser Ile Tyr Val His Val Val Gln Asn Ala
225                 230                 235                 240
Thr Gly Pro Ser Val Asp Tyr Pro Glu Asp Ile Thr Lys Val Glu Gln
                245                 250                 255
Tyr Leu Leu Cys Leu Ser Lys Ala Ser Phe
            260                 265
<210>270
<211>141
<212>PRT
<213>Chlamydia trachomatis
<400>270
Ser Asn Glu Lys Leu Leu Tyr Phe Ile Ile Ile Met Leu Ser Lys Phe
  1               5                  10                  15
Cys Lys Leu Ser Leu Ser Ala Ile Leu Leu Ile Asn Thr Leu Ala Pro
            20                  25                  30
Ser Glu Ala Phe Ser Glu Glu Gly Thr Ser Gly Phe Leu Gly Arg Met
        35                  40                  45
Lys Ser Trp Ile Leu Lys Asp Lys Thr Ile Leu Ser Thr Thr Glu Glu
    50                  55                  60
Ser Gln Thr Ser Ala Ile Glu Lys Val Ser Asp Leu Leu Ser Trp Lys
65                  70                  75                  80
Arg Tyr Asp Tyr Thr Gln Glu Ser Gly Phe Ala Ile Gln Phe Pro Glu
                85                  90                  95
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Ser Pro Glu His Ser Glu Gln Val Ile Glu Val Pro Gln Ser Asp Leu
100 105 110
Ala Ile Arg Tyr Asp Thr Tyr Val Ala Glu Thr Pro Ser Asp Ser Thr
115 120 125
Val Tyr Val Val Ser Val Leu Gly Ile Ser Arg Glu Asn
130 135 140

<210>271
<211>238
<212>PRT
<213>Chlamydia trachomatis
<400>271
Phe Leu Phe Arg Ser Cys Phe Pro Met Leu Asp Val Lys Ser Leu Tyr
1 5 10 15
Tyr Ser His Ala Ser His Ser Val Phe Glu Asp Ala Ser Ala Gly Phe
20 25 30
Ala Ser Gly Gln Ile Ser Met Val Leu Gly Ala Ser Gly Ser Gly Lys
35 40 45
Thr Thr Leu Phe Arg Ile Ile Val Gly Leu Leu Ser Cys Ser Leu Gly
50 55 60
Glu Ile Leu Trp Lys Gly Gln Pro Ile Gln Gln Glu Gln Ile Ala Tyr
65 70 75 80
Met Gln Gln Lys Glu Ala Leu Leu Pro Trp Arg Thr Val Arg Lys Asn
85 90 95
Ile Leu Leu Leu Thr Glu Leu Gly Ser Arg Lys Gln Lys Thr Thr Ile
100 105 110
Glu Glu Glu Cys Phe Tyr Asn Val Val His Ser Phe Gly Leu Ser Ser
115 120 125
Leu Leu Asp Arg Phe Pro Asp Glu Leu Ser Gly Gly Gln Arg Gln Arg
130 135 140
Val Val Phe Ala Met Gln Ser Leu Ser Pro Lys Pro Ile Leu Leu Leu
145 150 155 160
Asp Glu Pro Phe Thr Ser Leu Asp Pro Ile Thr Lys Xaa Ile Leu Tyr
165 170 175
Gln Asp Val Lys Arg Leu Ala Lys Glu Glu Gly Lys Thr Ile Ile Leu
180 185 190
Ala Ser His Asp Val Gln Asp Cys Leu Gly Val Gly Glu Ala Phe Phe
195 200 205
Ala Ile Lys Asn Gln Lys Leu His Ser Ile Ala Leu Asn Lys Glu Gln
210 215 220
Gly Ile Ala Gly Leu Leu Gln Gln Met Lys Asp His Leu Val
225 230 235

<210>272
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<212>PRT
<213>Chlamydia trachomatis
<400>272
Arg Thr Arg Asn Arg Trp Val Ile Ala Ala Asn Glu Gly Pro Pro Ser
1 5 10 15
Leu Thr Ile Pro Pro Leu Lys Leu Val Gln Ala Ala Arg Pro Leu Tyr
20 25 30
Asp Gln Gln Leu His Lys Leu Ser Arg Glu Glu Lys Leu Ser Leu Gln
35 40 45
Gly Glu Ile Arg Thr His Glu Val Arg Ser Val Pro Leu Val Phe Phe
50 55 60
Ala Met Leu Ala Ala Val Gly Ala Phe Leu Ala Leu Cys Ile Gly Gly
65 70 75 80
Val Leu Cys Cys Ile Asp Asn Val Val Phe Leu Ser Glu Ile Phe Leu
85 90 95
Pro Phe Ile Leu Pro Gly Ile Leu Ser Leu Leu Pro Ile Ala Leu Leu
100 105 110
Leu Arg Leu Ala Trp Lys Glu Gln Lys Leu Ala Ala Gln Lys Gln Gln

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        115                 120                 125
Arg Ile Ala Ala Ser Cys Tyr Phe Glu Ser Leu Ala Leu Cys Arg Thr
    130                 135                 140
Tyr Lys Ser Gly Ala Pro Ser Val Lys Gly Leu Val Asn Phe Ile Gln
145                 150                 155                 160
Ser Glu Ile Leu Pro Ser Gly Phe Ser Lys Arg Phe Lys Phe Ala Val
                165                 170                 175
Leu Thr Gln Ala Lys Pro Ser Leu Leu Thr Lys Lys Ile Gln Leu Thr
            180                 185                 190
Lys Thr Pro Phe Asp Glu Thr Ile Glu Thr Ala Phe Ser His Ile Arg
        195                 200                 205
Glu Gly Leu Tyr Leu Ser Glu Ser Glu Gln Arg Asp His Asp Lys Lys
    210                 215                 220
Leu Xaa Xaa Glu Ala Asn Thr Ser Pro Lys Gly
225                 230                 235
<210>273
<211>407
<212>PRT
<213>Chlamydia trachomatis
<400>273
Ser Trp Cys Met Glu Lys Asp Phe Leu Glu Asn Val Tyr Arg His Phe
  1                 5                  10                  15
Arg Tyr Arg Phe Phe Lys Leu Ser Ile Leu Pro Ala Leu Leu Gly Leu
            20                  25                  30
Trp Leu Phe Phe Thr Pro Asn Ile Leu Asn Tyr Leu Asp Ser Ser Val
        35                  40                  45
Ile Leu Ser Asp Lys Ile Cys Gly Val Leu Leu Ile Leu Leu Ser Ala
    50                  55                  60
Leu Ser Phe Tyr Asn Pro Val Ile Leu Gln Leu Gly Ile Phe Ile Gly
65                  70                  75                  80
Leu Trp Val Ser Phe Phe Ser Cys Ser Ser Asp Leu Leu Pro Leu Val
                85                  90                  95
Phe Ala His Asp Ser Leu Leu Gly Phe Ala Thr Leu Ala Ile Ile Phe
            100                 105                 110
Leu Ile Pro Asn Arg Pro Glu Asp Leu Glu Val Gly Pro Thr Ile Pro
        115                 120                 125
Glu Thr Cys His Tyr Asn Pro Ser Ser Gly Gly Lys Arg Ala Ala Val
    130                 135                 140
Leu Ile Phe Ala Phe Val Gly Trp Leu Gln Ser Arg Tyr Leu Thr Ser
145                 150                 155                 160
Ala Ala Leu Asn Ile Ala Asp Ala Asp Thr Ser Cys Ser Leu Phe Phe
                165                 170                 175
Ser Ser Thr Leu Met Val Ile Tyr Ser Met Leu Ile Val Leu Ser Leu
            180                 185                 190
Thr Gly Gly Glu Arg Arg Trp His Thr Gln Pro Lys Val Val Phe Ile
        195                 200                 205
Thr Ala Ile Leu Leu Phe Ile Ala Ile Gly Leu Thr Leu Ala Ala Ile
    210                 215                 220
Leu Leu Ser Gln Leu Phe Leu Thr Asn Tyr Glu Gly Val Cys Leu Thr
225                 230                 235                 240
Val Ala Pro Val Phe Ser Leu Ala Phe Phe Tyr Asp Glu Ile Arg Ala
                245                 250                 255
Thr Trp Asn Tyr Leu Ser Gln Asn Tyr Ser Asn Arg Lys Gln Leu Ala
            260                 265                 270
Ile Thr Ala Phe Tyr Gly Ser Glu Tyr Tyr Lys Glu Ser Leu Phe Trp
        275                 280                 285
Glu Glu Arg Ser Val Leu Pro Phe Ser Gln Ala Cys Lys Gln Ala Phe
    290                 295                 300
Ala Gly Leu Ser Phe Pro Leu Asn Leu Ile Phe Ala Cys Ile Phe Ser
305                 310                 315                 320
Ile Phe Phe Val Gln Leu Asn Val Asn Leu Ser Ile Pro Asp Thr Cys
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                325                 330                 335
Arg Phe Phe Val Asn Ser Ala Cys Trp Phe Ile Leu Val Leu Ser Ile
            340                 345                 350
Phe Ser Phe Ala Glu Ser Leu Arg His Leu Arg Trp Leu Ser Leu Leu
        355                 360                 365
Phe Ala Ala Gly Ile Ile Leu Ser Pro Val Ile Phe His Leu Pro Leu
    370                 375                 380
Glu Ala Ser Thr Leu Leu Ser Ile Ile Val Ser Gly Ile Ala Phe Ile
385                 390                 395                 400
Ile Leu Ser Met Gly Arg Leu
                405
<210>274
<211>282
<212>PRT
<213>Chlamydia trachomatis
<400>274
Leu Ser Phe Leu Thr His Lys Lys Ser Glu Arg Lys Glu Lys Val Phe
  1                 5                  10                  15
Phe Asn Lys Glu Ala Ser Phe Ile Ser Ala Arg Lys Arg Phe Arg Phe
            20                  25                  30
Phe Tyr Phe Cys Leu Ile Ser Ile Leu Asn Gly Arg Met Asp Thr Arg
        35                  40                  45
Thr Pro Leu Arg Lys Lys Ile Leu Ile Ile Ser Thr Ala Leu Gly Phe
    50                  55                  60
Val Leu Cys Val Gly Leu Met Ile His Thr Lys Arg Ser Ile Met Pro
65                  70                  75                  80
Pro Lys Thr His Ile Pro Thr Thr Ala Lys Tyr Phe Pro Thr Ile Gly
                85                  90                  95
Asp Pro Tyr Ala Pro Ile Asn Ile Thr Val Phe Glu Glu Pro Ser Cys
            100                 105                 110
Ser Ala Cys Glu Glu Phe Ser Ser Glu Val Phe Pro Leu Ile Lys Lys
        115                 120                 125
His Phe Val Asp Thr Gly Glu Ala Ser Leu Thr Leu Val Pro Val Cys
    130                 135                 140
Phe Ile Arg Gly Ser Met Pro Ala Ala Gln Ala Leu Leu Cys Val Tyr
145                 150                 155                 160
His His Asp Pro Lys Arg Pro Asp Pro Glu Ala Tyr Met Glu Tyr Phe
                165                 170                 175
His Arg Ile Leu Thr Tyr Lys Lys Thr Lys Gly Ser His Trp Ala Thr
            180                 185                 190
Pro Glu Val Leu Ala Lys Leu Ala Glu Lys Ile Pro Thr His Ser Gly
        195                 200                 205
Arg Glu Ile Asn Pro Lys Gly Leu Ile Gln Cys Ile Asn Ser Gln Arg
    210                 215                 220
Phe Thr Glu Gln Leu Lys Lys Asn Asn Ile Tyr Gly Ser Gln Ile Met
225                 230                 235                 240
Gly Gly Gln Leu Ala Thr Pro Thr Ala Val Val Gly Asp Tyr Leu Ile
                245                 250                 255
Glu Asp Pro Thr Phe Asp Glu Ile Glu Arg Val Ile Thr Gln Leu Arg
            260                 265                 270
His Leu Gln Ala Ile Glu Glu Glu Val Arg
        275                 280
<210>275
<211>529
<212>PRT
<213>Chlamydia trachomatis
<400>275
Met His His Arg Lys Phe Leu Ala Val Ser Ile Ala Phe Val Ser Leu
  1                 5                  10                  15
Ala Phe Gly Leu Thr Ser Cys Tyr His Gln Lys Glu Glu Pro Lys Asp
            20                  25                  30
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Val Leu Arg Ile Ala Ile Cys His Asp Pro Met Ser Leu Asp Pro Arg
          35                  40                  45
Gln Val Phe Leu Ser Lys Asp Val Ser Ile Val Lys Ala Leu Tyr Glu
      50                  55                  60
Gly Leu Val Arg Glu Lys Glu Ala Ala Phe Gln Leu Ala Leu Ala Glu
 65                  70                  75                  80
Arg Tyr His Gln Ser Asp Asp Gly Cys Val Tyr Thr Phe Phe Leu Lys
                 85                  90                  95
Asn Thr Phe Trp Ser Asn Gly Asp Val Val Thr Ala Tyr Asp Phe Glu
            100                 105                 110
Glu Ser Ile Lys Gln Ile Tyr Phe Arg Glu Ile Asp Asn Pro Ser Leu
        115                 120                 125
Arg Ser Leu Ala Leu Ile Lys Asn Ser His Ala Val Leu Thr Gly Ala
    130                 135                 140
Leu Pro Val Glu Asp Leu Gly Val Arg Ala Leu Asn Ala Lys Ser Leu
145                 150                 155                 160
Glu Ile Val Leu Glu Asn Pro Phe Pro Tyr Phe Leu Glu Ile Leu Ala
                165                 170                 175
His Pro Val Phe Tyr Pro Val His Thr Ser Leu Arg Glu Tyr Tyr Lys
            180                 185                 190
Asp Lys Arg Asn Lys Arg Val Phe Pro Met Ile Ser Asn Gly Pro Phe
        195                 200                 205
Ala Ile Gln Cys Tyr Glu Pro Gln Arg Tyr Leu Leu Ile Asn Lys Asn
    210                 215                 220
Pro Leu Tyr His Ala Lys His Asp Val Leu Leu Asn Ser Val Cys Leu
225                 230                 235                 240
Gln Ile Val Pro Asp Ile His Thr Ala Met Gln Leu Phe Gln Lys Asn
                245                 250                 255
His Ile Asp Leu Val Gly Leu Pro Trp Ser Ser Ser Phe Ser Leu Glu
            260                 265                 270
Glu Gln Arg Asn Leu Pro Arg Glu Lys Leu Phe Asp Tyr Pro Val Leu
        275                 280                 285
Ser Cys Ser Val Leu Phe Cys Asn Ile His Gln Thr Pro Leu Asn Asn
    290                 295                 300
Pro Ser Leu Arg Thr Ala Leu Ser Leu Ala Ile Asn Arg Glu Thr Leu
305                 310                 315                 320
Leu Lys Leu Ala Gly Lys Gly Cys Ser Ala Thr Ser Phe Val His Pro
                325                 330                 335
Gln Leu Ser Gln Ile Pro Ala Thr Thr Leu Ser Gln Asp Glu Arg Ile
            340                 345                 350
Ala Leu Ala Lys Gly Tyr Leu Thr Glu Ala Leu Lys Thr Leu Ser Gln
        355                 360                 365
Glu Asp Leu Glu Lys Ile Thr Leu Ile Tyr Pro Ile Glu Ser Val Cys
    370                 375                 380
Leu Arg Ala Val Val Gln Glu Ile Arg Gln Gln Leu Phe Asp Val Leu
385                 390                 395                 400
Gly Phe Lys Ile Ser Thr Leu Gly Leu Glu Tyr His Cys Phe Leu Asp
                405                 410                 415
Lys Arg Ser Arg Gly Glu Phe Ser Leu Ala Thr Gly Asn Trp Ile Ala
            420                 425                 430
Asp Tyr His Gln Ala Ser Ala Phe Leu Ser Val Leu Gly Asn Gly Thr
        435                 440                 445
Arg Tyr Lys Asp Phe Gln Leu Ile Asn Trp Gln Asn Gln Lys Tyr Thr
    450                 455                 460
Asn Ile Val Ala Gln Leu Leu Ile Gln Glu Ser Ser Asp Leu Gln Leu
465                 470                 475                 480
Met Ala Glu Gln Leu Leu Leu Lys Glu Ser Pro Leu Ile Pro Leu Tyr
                485                 490                 495
His Leu Asp Tyr Val Tyr Ala Lys Gln Pro Arg Val Ser Asp Leu Gln
            500                 505                 510
Thr Ser Ser Leu Gly Glu Ile Asp Leu Lys Arg Val Ser Leu Ala Glu
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515 520 525
Gly

<210>276
<211>183
<212>PRT
<213>Chlamydia trachomatis
<400>276
Ile Ile Thr Thr Leu Phe Val Lys Thr Ser Met Phe Phe Leu Ala Lys
1 5 10 15
Arg Leu Val Gln Leu Asn Lys Asn Pro Phe Leu Leu Lys Lys Phe Ser
20 25 30
Glu Thr Thr Val Leu Phe Ile Phe Glu Arg Gln Leu Lys Met Trp Glu
35 40 45
Gly Tyr Ser Ile Asp Glu Asn Asn Tyr Ile Ser Asp Tyr Asn Met Glu
50 55 60
Phe Gly Arg Pro Leu Leu Gln Lys Leu Ala Asn Pro Val Cys Lys Ala
65 70 75 80
Leu Leu Gln Lys Gln Leu Glu Ala Glu Gln Ala Met Thr Leu Ser Asn
85 90 95
Gln Val Thr Val Gly Asp Ile Val Leu Met Arg Ser Pro Ile Phe Glu
100 105 110
Lys Ser Val Leu Leu Glu Ala Leu Ile Asn Glu Ile Ile Tyr Gln Glu
115 120 125
Ser Leu Phe Leu Phe Lys Lys Pro Glu Asn Cys Ser Met Ser Glu Asp
130 135 140
Glu Phe Arg Ala Arg Cys Thr Arg Asn Leu Val Glu Asp Leu Phe Asp
145 150 155 160
Gly Leu Met Asn Leu Trp Val Gln Ile Lys Leu Ile Lys Gly Tyr Asp
165 170 175
Ser Met Gln Asp Tyr Gln Glu
180

<210>277
<211>253
<212>PRT
<213>Chlamydia trachomatis
<400>277
Met Ser Lys Leu Thr Gln Val Phe Lys Gln Thr Lys Pro Cys Ile Gly
1 5 10 15
Tyr Leu Thr Ala Gly Asp Gly Gly Thr Ser Tyr Thr Ile Glu Ala Ala
20 25 30
Lys Ala Leu Ile Gln Gly Gly Val Asp Ile Leu Glu Leu Gly Phe Pro
35 40 45
Phe Ser Asp Pro Val Ala Asp Asn Pro Glu Ile Gln Val Ser His Asp
50 55 60
Arg Ala Leu Ala Glu Asn Leu Thr Ser Glu Thr Leu Leu Glu Ile Val
65 70 75 80
Glu Gly Ile Arg Ala Phe Asn Gln Glu Val Pro Leu Ile Leu Tyr Ser
85 90 95
Tyr Tyr Asn Pro Leu Leu Gln Arg Asp Leu Asp Tyr Leu Arg Arg Leu
100 105 110
Lys Asp Ala Gly Ile Asn Gly Val Cys Val Ile Asp Leu Pro Ala Pro
115 120 125
Leu Ser His Gly Glu Lys Ser Pro Phe Phe Glu Asp Leu Leu Ala Val
130 135 140
Gly Leu Asp Pro Ile Leu Leu Ile Ser Ala Gly Thr Thr Pro Glu Arg
145 150 155 160
Met Ser Leu Ile Gln Glu Tyr Ala Arg Gly Phe Leu Tyr Tyr Ile Pro
165 170 175
Tyr Glu Ala Thr Arg Asp Ser Glu Val Gly Ile Lys Glu Glu Phe Arg
180 185 190

Lys Val Arg Glu His Phe Asp Leu Pro Ile Val Asp Arg Arg Asp Ile
195 200 205
Cys Asp Lys Lys Glu Ala Ala His Val Leu Asn Tyr Ser Asp Gly Phe
210 215 220
Ile Val Lys Thr Ala Phe Val His Gln Thr Thr Met Asp Ser Ser Val
225 230 235 240
Glu Thr Leu Thr Ala Leu Ala Gln Thr Val Ile Pro Gly
245 250

<210>278
<211>337
<212>PRT
<213>Chlamydia trachomatis
<400>278
Leu Lys Leu Arg Ile Leu Leu Gly Ala Ile Asp Gly Pro Arg Val Phe
1 5 10 15
Leu Lys Arg Glu Asp Leu Leu His Thr Gly Ala His Lys Leu Asn Asn
20 25 30
Ala Leu Gly Gln Cys Leu Leu Ala Lys Tyr Leu Gly Lys Thr Arg Val
35 40 45
Val Ala Glu Thr Gly Ala Gly Gln His Gly Val Ala Thr Ala Thr Ala
50 55 60
Cys Ala Tyr Leu Gly Leu Asp Cys Val Val Tyr Met Gly Ala Lys Asp
65 70 75 80
Val Glu Arg Gln Lys Pro Asn Val Glu Lys Met Arg Phe Leu Gly Ala
85 90 95
Glu Val Val Ser Val Thr Lys Gly Ser Cys Gly Leu Lys Asp Ala Val
100 105 110
Asn Gln Ala Leu Gln Asp Trp Ala Thr Thr His Ser Phe Thr His Tyr
115 120 125
Cys Leu Gly Ser Ala Leu Gly Pro Leu Pro Tyr Pro Asp Ile Val Arg
130 135 140
Phe Phe Gln Ser Val Ile Ser Ala Glu Val Lys Glu Gln Ile His Ala
145 150 155 160
Val Ala Gly Arg Asp Pro Asp Ile Leu Ile Ala Cys Ile Gly Gly Gly
165 170 175
Ser Asn Ala Ile Gly Phe Phe His His Phe Ile Pro Asn Pro Lys Val
180 185 190
Gln Leu Ile Gly Val Glu Gly Gly Gly Leu Gly Ile Ser Ser Gly Lys
195 200 205
His Ala Ala Arg Phe Ala Thr Gly Arg Pro Gly Val Phe His Gly Phe
210 215 220
Tyr Ser Tyr Leu Leu Gln Asp Asp Asp Gly Gln Val Leu Gln Thr His
225 230 235 240
Ser Ile Ser Ala Gly Leu Asp Tyr Pro Ser Val Gly Pro Asp His Ala
245 250 255
Glu Met His Glu Ser Gly Arg Ala Phe Tyr Thr Leu Ala Thr Asp Glu
260 265 270
Glu Ala Leu Arg Ala Phe Phe Leu Leu Thr Arg Asn Glu Gly Ile Ile
275 280 285
Pro Ala Leu Glu Ser Ser His Ala Leu Ala His Leu Val Ser Ile Ala
290 295 300
Pro Ser Leu Pro Lys Glu Gln Ile Val Ile Val Asn Leu Ser Gly Arg
305 310 315 320
Gly Asp Lys Asp Leu Pro Gln Ile Ile Arg Arg Asn Arg Gly Ile Tyr
325 330 335
Glu

<210>279
<211>103
<212>PRT
<213>Chlamydia trachomatis

<400>279
Tyr Tyr Ser Ile Thr Lys Arg Cys Asp Met Lys Asn Gln Glu Glu Ser
1 5 10 15
Gly Trp Gln Ala Phe Leu Thr Leu Cys Ser Lys Met Gln Lys Glu Lys
20 25 30
Phe Leu Gln Asp Leu Phe Ser Leu Phe Leu Ser Phe Gly Glu Arg Lys
35 40 45
Asp Val Ala Ser Arg Tyr His Ile Ile Arg Ala Leu Leu Glu Gly Glu
50 55 60
Leu Thr Gln Arg Glu Ile Ala Glu Lys Tyr Gly Val Ser Ile Ala Gln
65 70 75 80
Ile Thr Arg Gly Ser Asn Ala Leu Lys Gly Ser Asp Pro Gln Phe Lys
85 90 95
Glu Phe Leu Gln Lys Glu Ile
100
<210>280
<211>106
<212>PRT
<213>Chlamydia trachomatis
<400>280
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1 5 10 15
Trp Lys Ile Pro Glu Gly Phe Leu Gln Phe Ala Phe Ala Tyr Tyr Arg
20 25 30
Ser Trp Val Glu His Trp Val Lys Lys Ser Leu Arg Arg Gly Ser Leu
35 40 45
Ile Gln Leu Pro Ala Arg Ser Ile Gln Val Ser Leu Ile Thr Thr Gln
50 55 60
Thr Gly Tyr Phe Ala Arg Gln Asn Arg Arg Gly Gly Phe Gln Val Phe
65 70 75 80
Tyr Ser Ile Tyr Gly Leu Glu Gly Lys Val Gln Pro His Gln Ala Pro
85 90 95
Gly Asp Met Leu Cys Asp Ile Thr Glu Asp
100 105
<210>281
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<213>Chlamydia trachomatis
<400>281
Ser Glu Gly Leu Glu Met Phe Val Ser Phe Asp Lys Ser Arg Cys Arg
1 5 10 15
Ala Asp Val Pro Asp Phe Phe Glu Arg Thr Gly Asn Phe Leu Leu His
20 25 30
Cys Val Ala Arg Gly Ile Asn Val Leu Tyr Arg Val Lys Gln Ile Pro
35 40 45
Asn Tyr Pro Ser Cys Tyr Phe Ser His Lys Glu Ile Ser Cys Cys Arg
50 55 60
Arg Ile Ala Asn Ile Val Ile Cys Ile Leu Thr Gly Pro Leu Met Leu
65 70 75 80
Leu Ala Thr Val Leu Gly Leu Leu Ala Tyr Arg Phe Ser Ser Thr Tyr
85 90 95
Gln Thr Ser Leu Gln Glu Arg Phe Arg Tyr Lys Tyr Glu Gln Lys Gln
100 105 110
Ala Leu Asp Glu Tyr Arg Asp Arg Glu Glu Lys Val Ile Thr Leu Gln
115 120 125
Lys Phe Cys Arg Gly Phe Leu Val Arg Asn His Leu Leu Asn Gln Glu
130 135 140
Thr Leu Thr Thr Cys Lys Gln Trp Gly Gln Lys Leu Leu Glu Gly Glu
145 150 155 160
Lys Phe Pro Arg Val Pro Glu Gly Arg Ser Leu Val Tyr Ile Ser Lys
165 170 175

Gln Phe Pro Ser Leu Val Glu Asn Phe Leu Phe Glu Glu Lys Leu Pro
180 185 190
Val Ser Arg Ile Ser Val Asp Ser Met Cys Leu Tyr Lys Glu Asn Pro
195 200 205
Gln Ala Phe Asp Glu Ala Ile Lys Glu Leu Leu Phe Leu Phe Lys Glu
210 215 220
Val His Phe Arg Asp Phe Val Val Glu Thr Glu Ser Pro Thr Asp Asp
225 230 235 240
Phe Pro Leu Ala Val Lys Val His Asn Tyr Trp Val Cys Pro Arg Tyr
245 250 255
Asp Asn Leu Pro Leu Phe Ile Gln Glu Gly Lys Asp Gly Ser Pro Glu
260 265 270
Gly Arg Ile Gly Leu Val Asp Leu Glu Thr Phe Ser Trp Ser Pro His
275 280 285
Pro Cys Pro Val Glu Glu Leu Ala Val Met Phe Pro Met Ser Lys Glu
290 295 300
Leu Leu Met Thr Glu Ala Lys Lys Leu Gln Ile Pro Phe Ser Thr Lys
305 310 315 320
Glu Val Glu Arg Ser Val Glu Lys Gly Leu Ala Phe Phe Glu His Met
325 330 335
Leu Gly His Pro Asp Phe Cys Ser Gln Lys Ser Val Thr Pro Leu Arg
340 345 350
Asn Cys Ala Pro Tyr Leu His Leu Glu Val Trp Arg Phe Ser Leu Lys
355 360 365
Ile Phe Asp Ile Leu Lys Ala Ala Ile Arg Leu Asn Gly Ala Leu Asn
370 375 380
Val Leu Leu Ser Pro Asp Ile Arg Glu Arg Leu Ser Ala Ile Ser Asp
385 390 395 400
Lys Gln Trp Leu Ala Ile Ser Ser Gln Val Thr Ser Ser Leu Leu Glu
405 410 415
Gln Val Ser Thr Asn Ile Tyr Gln Ser His Thr Glu Glu Ala Lys Arg
420 425 430
Val Asn Ser Ser Gly Thr Phe Ile Met Cys Arg Ser Pro Ile Phe Arg
435 440 445
Lys Ser Ile Phe Ile Lys Asn Leu Pro Glu Leu Leu Asn Lys Lys Leu
450 455 460
Gln Leu Leu Pro Glu Glu Lys Glu Ile Ser Glu Ala Leu Ala Ser Leu
465 470 475 480
Cys Leu Arg Ala Val Met Glu Glu Leu Val Ala Thr Gly Asn Ile Tyr
485 490 495
Ser Tyr Asp Ser Met Asp Asp Phe Phe Glu Gly Gln Tyr Cys Arg Ile
500 505 510
Arg Tyr

<210>282
<211>112
<212>PRT
<213>Chlamydia trachomatis
<400>282
Lys Ile His Lys Lys Ile Lys Lys Cys Leu Thr Thr Thr Leu Leu Pro
1 5 10 15
Asn Leu Phe Ser Leu Phe Thr Asn Arg Asn Arg Glu Thr Leu Met Ile
20 25 30
Val Thr Phe Asp Lys Tyr Leu Ala Pro Glu Leu Gly Pro Asp Pro Leu
35 40 45
Glu Arg Leu Gly Asn Val Leu Leu Tyr Pro Ile Ile Arg Gly Phe Gly
50 55 60
Ser Leu Val Ser Val Lys Thr Leu Gly Glu Lys Arg Phe Leu Cys Phe
65 70 75 80
Ser Asp Lys Val Val Ser Leu Cys Val Asn Ala Phe Phe Val Trp Tyr
85 90 95

```
Ala Ile Phe Ser Gln His Leu Leu Arg Val Cys Ser Leu Cys Glu Gly
            100                 105                 110
<210>283
<211>286
<212>PRT
<213>Chlamydia trachomatis
<400>283
Arg Pro Ile Lys Leu His Glu Leu Phe Leu Ile Val Leu Leu Lys Arg
  1               5                  10                  15
Glu Thr Arg Leu Arg Ser Leu Ser Lys Asn Asn Ala Pro Pro Leu Ser
             20                  25                  30
Leu Tyr Lys Asn Ile Tyr Val Ala Arg Lys Pro Leu Val Asp Arg Asp
         35                  40                  45
His Phe Pro Lys Tyr Arg Thr Ile Cys Asp Ala Ile Met Glu Gly Asn
     50                  55                  60
Leu Glu Asn Ile Arg Phe Ser Asp Lys Thr Gly Glu Ser Val Tyr Ser
 65                  70                  75                  80
Ser Lys Glu Leu Pro Ser Val Leu Phe Lys Arg Ile Gly Gln Lys Asn
                 85                  90                  95
Ala Lys Gln Arg Val Leu Asn Asn Ile Ala Leu Asn Ala Tyr Leu Ala
            100                 105                 110
Lys Thr Gly Val Asp Gly Leu Gln Val Leu Ser Ala Ser Thr Tyr Lys
        115                 120                 125
Asp Phe Leu Ile Glu Asp Lys Pro Phe Gly Lys Gly Ala Leu Asp Thr
    130                 135                 140
Leu Ile Ala Tyr Arg Leu Asn Pro Ser Leu Phe Asp Arg Ala Val Lys
145                 150                 155                 160
Ser Leu Cys Lys Leu Phe Ser Phe Tyr His Cys Pro Asp Leu Phe Val
                165                 170                 175
Lys Ser Gly Asp Leu Leu Lys Asp Ser Pro His Ser Lys Leu Leu Leu
            180                 185                 190
Gly Phe Lys Glu Asn Asn Glu Ser Leu Ala Ala Glu Ser Ala Thr Leu
        195                 200                 205
Gln Pro Ile Leu Tyr Leu Thr Gly Ile Gln Cys Ile Leu Glu Glu Pro
    210                 215                 220
Thr Pro Asp Leu Glu Ala Lys Leu Ser Ser Leu Phe Pro Tyr His Lys
225                 230                 235                 240
Thr Leu Ile Gln Gln Glu Leu Ser Lys Leu Arg Val Ser Lys Pro Lys
                245                 250                 255
Val Glu Ala Ser Lys Glu Pro Thr Pro Pro Ser Thr Tyr Asp Glu Arg
            260                 265                 270
Leu Lys Ser Ser Pro Pro Thr Glu Met Glu Asn Phe Tyr Asp
        275                 280                 285
<210>284
<211>167
<212>PRT
<213>Chlamydia trachomatis
<400>284
Lys Ala Leu Pro Leu Gln Lys Trp Lys Ile Phe Met Thr Glu Gln Pro
  1               5                  10                  15
His Arg Leu Ser Glu Glu Ala Arg Ser Ile Ala Asn Glu Ala Lys Glu
             20                  25                  30
Arg Leu Leu Lys Leu Asn Asp Lys Pro Glu Leu Ser Arg Pro Tyr Leu
         35                  40                  45
Val Lys Gly Phe Leu Ser Lys Ile Ser Arg Gly Ile Ser Asp Lys Glu
     50                  55                  60
Ala Ala Ser Lys Phe Ser Lys Ala Ile Val Thr Ser Leu Leu Gly Tyr
 65                  70                  75                  80
Leu Trp Asn His Ile Leu Gln Asn Lys Glu Arg Ile Leu Ser Ala Asp
                 85                  90                  95
Ala Arg Asp Leu Glu Ala His Ser Ala Leu Leu Asp Thr Lys Glu Ile
```

```
            100                 105                 110
Leu Ala Leu Cys Lys Tyr Phe Ala Ile Asn Arg Cys Thr Trp Leu Ser
        115                 120                 125
Ser Ser Ser Thr Gln Glu Glu Glu Asn Leu Ile Cys Gln Asp Ile Ala
    130                 135                 140
Lys Glu Met Phe Ser Ser Leu Tyr Met Leu Leu Trp Asn Asn Ser Gly
145                 150                 155                 160
Ser Glu Asp Met Ile Phe Gln
                165
```

<210>285
<211>107
<212>PRT
<213>Chlamydia trachomatis

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<400>285
Ser Lys Thr Phe Arg Arg Arg Lys Lys Ser Phe Phe Phe Ser Met Ser
  1               5                  10                  15
Val Asn Arg Asn His Asn Asn Phe Pro Pro Tyr Gly Glu Asn Glu Thr
            20                  25                  30
Pro Pro Pro Glu Ser Gln Pro Thr Asp Gly Pro Glu Asp Pro Ser Met
        35                  40                  45
Gln Gly Ala Tyr Tyr Ile Ala Pro Glu Asp Leu Pro Gln His Gln Leu
    50                  55                  60
Ala Ala Ala Val Glu Gly Leu His Ile Gly Ser Thr Leu Asn Pro Thr
65                  70                  75                  80
Ala Pro Glu Phe Thr Pro Gly Ala Val Ser His His Phe Glu Thr Phe
                85                  90                  95
Thr Pro Ser Phe Pro Pro Ala Pro Gln Gln Pro
            100                 105
```

<210>286
<211>406
<212>PRT
<213>Chlamydia trachomatis

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<400>286
Ala Val Leu Asp Pro Tyr Ala Thr Tyr Pro Tyr Gly Val Gln Ser Pro
  1               5                  10                  15
Tyr Leu Glu Tyr Ala Pro Pro Ala Val Val Gln Glu Pro Tyr Thr Thr
            20                  25                  30
Thr Gly Gln Gln Gly Leu Ser Ser Tyr Pro Glu Ala Ala Pro Gln Pro
        35                  40                  45
Pro Ala Leu Gln Gln Pro Glu Ser Leu Pro Gln Ala Thr Ala Arg Asp
    50                  55                  60
Arg Gly Asp Leu Glu Lys Glu Ala Asn Asn Thr Asn Ser Phe Ala Thr
65                  70                  75                  80
Gln Ala Ile Glu Thr Thr Pro Ser Asn Ile Ser Pro Cys Phe Asn Leu
                85                  90                  95
His Gly Glu Ala Ile Gln Leu Phe Ser Thr Glu Ser Gly Pro Ser Pro
            100                 105                 110
Leu Arg Ala Ile Leu Gln Ala Ile Lys Gln Ala Lys Tyr His Ile Tyr
        115                 120                 125
Ile Gln Ile Tyr Arg Phe Thr Ser Glu Glu Ile Ala Ala Ala Leu Leu
    130                 135                 140
Glu Arg Ala Asn Asn Gly Val Arg Ile His Tyr Asn Ile Asn Thr Ser
145                 150                 155                 160
Ala Ala Gln Lys Pro Leu Phe Asp Ile Leu Thr Cys Lys Phe Lys Ala
                165                 170                 175
Thr Asn Gln Ala Arg Leu His Cys Lys Asn Ile Val Val Asp Gly Ser
            180                 185                 190
Leu Val Ile Thr Gly Ser Ala Asn Phe Ser Asp Ala Ala Phe Ser Arg
        195                 200                 205
Asp Ile Asn Leu Val Ala Ile Ile Arg Asn Pro Ser Leu Gly Gln Leu
    210                 215                 220
```

Val Val Ser Gln Gln Ser Gly Trp Ile Thr Gly Gly Ser Gln Gln Ile
225 230 235 240
Glu Tyr Cys Ser Leu Tyr Cys His Asn His Gln Gly Val Asp Glu Val
245 250 255
Val Lys Ala Val Gln Ser Ala Val Lys Thr Ile Arg Val Ala Met Leu
260 265 270
Val Leu Ser His Glu Glu Val Leu His Ala Leu His Gln Ala Ala Gln
275 280 285
Arg Gly Val Glu Val Thr Val Leu Val Asn Pro His Asn Lys Ala Val
290 295 300
Leu Phe Tyr Ala Leu Gln Asp Leu Asn Ser Lys Val Lys Leu Arg Asp
305 310 315 320
Val Val Val Glu Glu Asn Ala Leu Leu His Cys Lys Val Gly Leu Ile
325 330 335
Asp Thr Asn Leu Leu Ile Thr Gly Ser Ala Asn Trp Thr Val Arg Gly
340 345 350
Leu Gln Tyr Asn Ile Glu Asp Leu Ile Phe Ile His Gln Pro Thr Pro
355 360 365
Ser Gln Leu Ser Ala Phe Phe Asn Leu Trp Glu Gln Ala Met Ser Leu
370 375 380
Ser Arg Glu Val Thr Ala Lys Lys Ile Lys Lys Ser Ala Arg Ala Gln
385 390 395 400
His Lys Tyr Asp Asp Glu
405

<210>287
<211>367
<212>PRT
<213>Chlamydia trachomatis
<400>287
Ser Leu Ile Leu Glu Asp Ala Val Ala Leu Asp Pro Pro Pro Pro Pro
1 5 10 15
Pro His Thr Ser Gln Asn Thr Pro Ser Pro Lys Asp Ser Ser Leu Val
20 25 30
Ala Arg Thr Asp Lys Ala Ala Thr Asp Ile Phe Asn Ser Ala Lys His
35 40 45
Lys Ala Ile Glu Thr Thr Lys Arg Ser Asp Gln Gln Ser Arg Ser Leu
50 55 60
Pro Ile Leu His Leu Leu Ala Ala Asp Pro Glu Pro Ile Val Phe His
65 70 75 80
Ser Thr His Gln Thr Asn His Asn Asp Pro Gln Arg Met Leu Cys Asp
85 90 95
Ala Ile Leu Gln Ala Asn Arg Ile Ile Thr Met Arg Ile Phe Asn Ile
100 105 110
Gly Ser Pro Glu Ile Ile Arg Ala Leu Ile Arg Ala Val Arg Arg Asn
115 120 125
Ile Pro Val Ile Val Ser Ala Trp Asn Phe Pro Asn Leu Ser Asn Trp
130 135 140
Asp Arg Glu Ser Lys Leu Tyr Val Glu Leu Arg Gly Asn Pro Gln Ile
145 150 155 160
Cys Leu His Lys Lys Thr Thr Leu Ile Asp Asn Gln Leu Thr Ile Ile
165 170 175
Gly Thr Ala Asn Tyr Thr Lys Ser Ser Phe Phe Lys Asp Ile Asn Leu
180 185 190
Thr Ala Leu Ile Gln Asn Pro Ala Leu Tyr Ser Leu Ile Leu Ser Gly
195 200 205
Thr Arg Gly Ser Val Ser Ile Gly Ser Gln Thr Ile Ser Tyr Tyr Pro
210 215 220
Leu Pro Phe Pro Gln Ser Asn Thr Lys Thr Leu Pro Ile Ile Gln Glu
225 230 235 240
Ile Gln Lys Ala Gln Arg Thr Ile Lys Ile Ala Met Asn Ile Phe Ser
245 250 255

09250708 - 14-05-09

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His Pro Glu Ile Phe Leu Ala Leu Glu Gln Ala Arg Leu Arg Gly Val
            260                 265                 270
Thr Ile Thr Ile Val Ile Asn Lys Lys Glu Ser Ala His Thr Leu Asp
        275                 280                 285
Ile Leu His Arg Ile Ser Ala Leu Leu Leu Leu Lys Ser Val Thr Thr
    290                 295                 300
Val Asp Ser Leu His Ala Lys Ile Cys Leu Ile Asp Asp Gln Thr Leu
305                 310                 315                 320
Ile Phe Gly Ser Pro Asn Trp Thr Tyr His Gly Met His Lys Asn Leu
                325                 330                 335
Glu Asp Leu Leu Ile Val Thr Pro Leu Thr Pro Lys Gln Ile His Ser
            340                 345                 350
Ile Gln Glu Ile Trp Ala Phe Leu Leu Lys Asn Ser Ser Pro Val
        355                 360                 365
<210>288
<211>312
<212>PRT
<213>Chlamydia trachomatis
<400>288
Met Leu Ala Gly Ser Lys Arg Lys His Lys Thr Pro Glu Asp Thr Ser
  1               5                  10                  15
Ser Ser Ser Ser Lys Arg Ala Arg Ser Ser Ser Ser Gln Val Val Pro
            20                  25                  30
Arg Leu Leu Gln His His Glu Leu Ile Gln Leu Tyr Ser Ala His Gln
        35                  40                  45
Gln Arg Asn Asn Glu Pro Val Lys Met Ile Cys Glu Thr Ile Leu Gln
    50                  55                  60
Ala Lys Arg Ser Val Leu Leu Lys Val Phe Asn Ile Gly Ser Pro Arg
65                  70                  75                  80
Ile Leu Ala Ala Leu Ala Glu Ala Ser Asn Arg Ala Pro Val Ser Val
                85                  90                  95
His Tyr Gln Met Gly Pro Phe Ser Lys His Cys Thr Glu Gly Asn Val
            100                 105                 110
Gln Phe Arg Pro Arg Arg Gly Cys Ser Leu Leu His Arg Lys Thr Leu
        115                 120                 125
Leu Ile Asp Asn Asn Ile Val Val Thr Gly Thr Ala Asn Tyr Thr Glu
    130                 135                 140
Ala Ser Leu Glu Lys Asp Val Asn Leu Thr Ala Lys Ile Phe Ser Glu
145                 150                 155                 160
His Leu Tyr Arg Trp Ala Phe Arg His Asp Arg Gly Glu Val Arg Val
                165                 170                 175
Gly Ser Gln Gln Val Ser Tyr Tyr Ser Leu Ser Gln Ile Arg Arg Asp
            180                 185                 190
Leu Cys Val Lys Ala Ile Leu Glu Ala Asn Gly Ile Val Leu Arg Glu
        195                 200                 205
Arg Thr Cys Glu Gly Ile Leu His Thr Lys Val Cys Cys Ile Asp Ser
    210                 215                 220
Ser Thr Leu Ile Ile Gly Ser Val Asn Trp Ser Arg Gly Gly Leu Thr
225                 230                 235                 240
Leu Asn Leu Glu Glu Phe Leu Ile Ile Asn Pro Leu Thr Glu Thr Gln
                245                 250                 255
Leu Glu Cys Tyr Asn Glu Leu Trp Ala Tyr Ile Glu Thr Asn Ser Arg
            260                 265                 270
Leu Met Thr Lys Glu Leu Ile Gln Leu His Glu Lys Arg Lys Lys Ser
        275                 280                 285
Ile Thr Asp Pro Lys Gln Thr Ser Ser Ser Thr Gln Asp Glu Glu Asn
    290                 295                 300
Ala Ser Thr Ser Ala Glu Gln Gln
305                 310
<210>289
<211>236
```

<212>PRT
<213>Chlamydia trachomatis
<400>289

```
Leu Phe Ser Ser Ala Ser Pro Arg Thr Phe Thr Ser Pro Phe Phe Cys
  1               5                  10                  15
Arg Ile Ile Ser Tyr Ser Ser Val Arg Phe Lys Ser Leu Ser Ile Phe
             20                  25                  30
Thr Ala Phe Arg Gln Ser Ser Glu Ser Arg Asn Ser Pro Leu Arg Glu
         35                  40                  45
Thr Thr Gly Ser Ser Ser Arg His Arg Tyr His Arg His Gly Glu Thr
     50                  55                  60
Ser Ser Ser Ser Arg Ile Glu Thr Val Gly Ser Arg His Phe Ser Ser
 65                  70                  75                  80
Arg Arg Glu Ser Ser Arg Thr Gly Ser Arg Ser Ser Arg His Ser Glu
                 85                  90                  95
Arg Ala Arg His His Glu Ser Arg Ser His Arg His Ser Ser Ser Ser
            100                 105                 110
Arg His His Val Thr Arg Ser Gln Ser Ser Ala Leu Pro Gln Leu Gln
        115                 120                 125
Glu Arg Pro Val Pro His Pro Leu Ala Glu Arg Glu Leu Ile Thr Phe
    130                 135                 140
His Ser Val His Gln Gln Gln Asn Asn Asn Pro Leu Arg Met Ile Cys
145                 150                 155                 160
Asp Thr Ile Arg Gln Ala Gln Arg Gly Ile Phe Met Arg Ile Tyr Ala
                165                 170                 175
Ile Ser Ser Asp Asp Ile Ile Gln Ser Leu Ile Gln Thr Ser His His
            180                 185                 190
Val Pro Val Glu Val Lys Tyr His Cys Gly Glu Ser Leu Pro Val Ala
        195                 200                 205
Cys Gln Asn Ser Arg Val Val Leu Arg Pro Thr Asn Gly Arg Thr Leu
    210                 215                 220
Gln His Lys Lys Leu Cys Trp Leu Ile Ser Lys Gln
225                 230                 235
```

<210>290
<211>239
<212>PRT
<213>Chlamydia trachomatis
<400>290

```
Met Leu Ala Asp Phe Gln Thr Val Val Thr Gly Ser Ala Asn Tyr Thr
  1               5                  10                  15
Asp Leu Ser Leu Asn His Asp Val Asn Val Thr Ala Cys Ile Glu Ser
             20                  25                  30
Ser Glu Leu His Asp Ala Val Phe Ser Glu Arg Pro Gln Leu Val His
         35                  40                  45
Val Gly Pro Gln Leu Leu Asn Tyr Ile Pro Ile Gln Arg Leu Ile Pro
     50                  55                  60
Asn Ala Ala Ser Lys Met Ile Leu Asn Ala Ile Asn Gln Ala Thr Asp
 65                  70                  75                  80
Ser Ile Phe Val Leu Met Tyr Ile Phe Leu Ser Pro Glu Phe Phe Leu
                 85                  90                  95
Ala Leu Ala Gln Ala Met Arg Arg Gly Val Arg Val Lys Val Ile Ile
            100                 105                 110
Asp Asn His Ser Lys Gln Asp Thr Cys Lys Leu Leu Ser Lys Leu Gly
        115                 120                 125
Ile Gln Leu Pro Leu Tyr Glu Arg Lys Thr Glu Gly Ile Leu His Thr
    130                 135                 140
Lys Ile Cys Cys Ile Asp Asn Lys Thr Pro Ile Phe Gly Ser Ala Asn
145                 150                 155                 160
Trp Ser Gly Ala Gly Met Ile Lys Asn Phe Glu Asp Leu Phe Ile Leu
                165                 170                 175
Arg Pro Ile Thr Glu Thr Gln Leu Gln Ala Phe Met Asp Val Trp Ser
```

```
            180                 185                 190
Leu Leu Glu Thr Asn Ser Ser Tyr Leu Ser Pro Glu Ser Val Leu Thr
        195                 200                 205
Ala Pro Thr Pro Ser Ser Arg Pro Thr Gln Gln Asp Thr Asp Ser Asp
    210                 215                 220
Asp Glu Gln Pro Ser Thr Ser Gln Gln Ala Ile Arg Met Arg Lys
225                 230                 235
<210>291
<211>241
<212>PRT
<213>Chlamydia trachomatis
<400>291
Arg Leu Ser Ser Ser Ser Val Ser Leu Leu Phe Phe Lys Ala Ser Ser
  1               5                  10                  15
Phe His Tyr Arg Val Ser Ile Thr Val Gln Pro Gly Glu Phe Leu Met
            20                  25                  30
Thr Lys Pro Ser Xaa Leu Tyr Val Ile Gln Pro Phe Ser Val Phe Asn
        35                  40                  45
Pro Arg Leu Gly Arg Phe Ser Ile Asp Ser Asp Thr Tyr Ile Glu Glu
    50                  55                  60
Glu Asn Arg Leu Ala Ser Phe Ile Glu Ser Leu Pro Leu Glu Ile Phe
65                  70                  75                  80
Asp Ile Pro Ser Phe Met Glu Thr Ala Ile Ser Asn Ser Pro Tyr Ile
                85                  90                  95
Leu Ser Trp Glu Thr Thr Lys Asp Gly Ala Leu Phe Thr Ile Leu Glu
            100                 105                 110
Pro Lys Leu Ser Ala Cys Ala Ala Thr Cys Leu Val Ala Pro Ser Ile
        115                 120                 125
Gln Met Lys Ser Asp Ala Glu Leu Leu Glu Glu Ile Lys Gln Ala Leu
    130                 135                 140
Leu Arg Ser Ser His Asp Gly Val Lys Tyr Arg Ile Thr Arg Glu Ser
145                 150                 155                 160
Phe Ser Pro Glu Lys Lys Thr Pro Lys Val Ala Leu Val Asp Asn Asp
                165                 170                 175
Ile Glu Leu Ile Arg Asn Val Asp Phe Leu Gly Arg Ala Val Asp Ile
            180                 185                 190
Val Lys Leu Asp Pro Ile Asn Ile Leu Asn Thr Val Ser Glu Glu Asn
        195                 200                 205
Ile Leu Asp Tyr Ser Phe Thr Arg Glu Thr Ala Gln Leu Ser Ala Asp
    210                 215                 220
Gly Arg Phe Gly Ile Pro Pro Gly Thr Lys Leu Phe Ser Lys Pro Ser
225                 230                 235                 240
Phe

<210>292
<211>508
<212>PRT
<213>Chlamydia trachomatis
<400>292
Lys Pro Asn Pro His Arg Gly Lys Arg Pro Ser Arg Leu Thr Arg Ile
  1               5                  10                  15
His Arg Ile Glu Val Gln Leu Pro Asp Ser Ser Arg Ile Pro Tyr Asp
            20                  25                  30
Cys Ser Cys Ile Asn Arg Tyr Gly Ile Phe Pro Arg Phe Asn Pro Asn
        35                  40                  45
Gln Asn Lys Leu Asn Val Ile Arg Lys Ile Lys Ser Gly Phe Gln Arg
    50                  55                  60
Ser Leu Asp Asp Tyr His Ile Tyr Gln Ile Glu Arg Lys Xaa Xaa Phe
65                  70                  75                  80
Ser Phe Ser Pro Lys His Arg Ser Leu Ser Ser Thr Ser His Ser Glu
                85                  90                  95
```

```
Asp Ser Asp Leu Asp Leu Ser Glu Ala Ala Ala Phe Ser Gly Ser Leu
            100                 105                 110
Thr Cys Glu Phe Val Lys Lys Ser Thr Gln His Ala Lys Asn Thr Val
        115                 120                 125
Thr Cys Ser Thr Ala Ala His Ser Leu Tyr Thr Leu Lys Glu Asp Asp
    130                 135                 140
Ser Ser Asn Pro Ser Glu Lys Arg Leu Glu Asn Cys Phe Arg Asn Trp
145                 150                 155                 160
Ile Asp Asn Lys Leu Ser Ala Asn Ser Pro Asp Ser Trp Ser Ala Phe
                165                 170                 175
Ile Gln Lys Phe Gly Thr His Tyr Ile Ala Ser Ala Thr Phe Gly Gly
            180                 185                 190
Ile Gly Phe Gln Val Leu Lys Leu Ser Phe Glu Gln Val Glu Asp Leu
        195                 200                 205
His Ser Lys Lys Ile Ser Leu Glu Thr Ala Ala Ala Asn Ser Leu Leu
    210                 215                 220
Lys Gly Ser Val Ser Ser Ser Thr Glu Ser Gly Tyr Ser Ser Tyr Ser
225                 230                 235                 240
Ser Thr Ser Ser Ser His Thr Val Phe Leu Gly Gly Thr Val Leu Pro
                245                 250                 255
Ser Val His Asp Glu Arg Leu Asp Phe Lys Asp Trp Ser Glu Ser Val
            260                 265                 270
His Leu Glu Pro Val Pro Ile Gln Val Ser Leu Gln Pro Ile Thr Asn
        275                 280                 285
Leu Leu Val Pro Leu His Phe Pro Asn Ile Gly Ala Ala Glu Leu Ser
    290                 295                 300
Asn Lys Arg Glu Ser Leu Gln Gln Ala Ile Arg Val Tyr Leu Lys Glu
305                 310                 315                 320
His Lys Val Asp Glu Arg Gly Glu Arg Thr Thr Phe Thr Ser Gly Ile
                325                 330                 335
Asp Asn Pro Ser Ser Trp Phe Thr Leu Glu Ala Ala His Ser Pro Leu
            340                 345                 350
Val Val Ser Thr Pro Tyr Val Ala Ser Trp Ser Thr Leu Pro Tyr Leu
        355                 360                 365
Phe Pro Thr Leu Arg Glu Arg Ser Ser Ala Thr Pro Ile Val Phe Tyr
    370                 375                 380
Phe Cys Val Asp Asn Asn Glu His Ala Ser Gln Lys Ile Leu Asn Gln
385                 390                 395                 400
Ser Tyr Cys Phe Leu Gly Ser Leu Pro Ile Arg Gln Lys Ile Phe Gly
                405                 410                 415
Ser Glu Phe Ala Ser Phe Pro Tyr Leu Ser Phe Tyr Gly Asn Ala Lys
            420                 425                 430
Glu Ala Tyr Phe Asp Asn Thr Tyr Tyr Pro Thr Arg Cys Gly Trp Ile
        435                 440                 445
Val Glu Lys Leu Asn Thr Thr Gln Asp Gln Phe Leu Arg Asp Gly Asp
    450                 455                 460
Glu Val Arg Leu Lys His Val Ser Ser Gly Lys Tyr Leu Ala Thr Thr
465                 470                 475                 480
Pro Leu Lys Asp Thr His Gly Thr Leu Thr Arg Thr Thr Asn Cys Glu
                485                 490                 495
Asp Ala Ile Phe Ile Ile Lys Lys Ser Ser Gly Tyr
            500                 505
<210>293
<211>225
<212>PRT
<213>Chlamydia trachomatis
<400>293
Met Val Ile Leu Val Glu Ala Lys His Ile Ser Lys Val Ile Gln Gln
  1               5                  10                  15
Gln Asp Val Cys Ile Pro Ile Leu Lys Asp Val Ser Phe Gln Leu His
             20                  25                  30
```

```
Ala Gly Glu Val Val Ala Ile Thr Gly Ala Ser Gly Ser Gly Lys Ser
          35                  40                  45
Ser Leu Leu His Leu Leu Gly Thr Leu Asp Gln Pro Ser Ser Gly Gln
      50                  55                  60
Ile Leu Phe Phe Gly Lys Gln Val Arg Arg Glu Glu Leu Pro Ile Phe
 65                  70                  75                  80
Arg Asn Cys Arg Ile Gly Phe Ile Phe Gln Asn Phe Tyr Leu Leu Glu
                 85                  90                  95
Asp Asp Ser Val Ile Asn Asn Val Leu Met Pro Ala Gln Ile Ala Arg
            100                 105                 110
Lys Asp Thr Gly Gln Lys Ser Lys Ala Arg Glu Arg Ala Leu Ala Leu
        115                 120                 125
Leu Glu Ser Val Gly Leu Val Asp Arg Arg Asp Glu Lys Gly Ser Leu
    130                 135                 140
Leu Ser Gly Gly Glu Lys Gln Arg Val Ala Ile Ala Arg Ala Leu Met
145                 150                 155                 160
Asn Asp Pro Glu Ile Val Leu Ala Asp Glu Pro Ser Gly Asn Leu Asp
                165                 170                 175
His Arg Thr Ala Asp Thr Ile His Glu Leu Leu Leu Ala Leu Ala Glu
            180                 185                 190
Lys His Arg Gly Val Leu Ile Val Thr His Asp Arg Glu Leu Ala Glu
        195                 200                 205
Lys Cys His Arg Glu Glu Ile Leu Arg Asp Gly Thr Leu Met Gln Arg
    210                 215                 220
Gln
225
<210>294
<211>215
<212>PRT
<213>Chlamydia trachomatis
<400>294
Gly Ile Gly Cys Ile His Pro Leu Gly Ile Arg Arg Leu Gly Met His
  1               5                  10                  15
Asn Gly Trp Gln Val Phe Leu Pro Ser Val Gln Asp Ile Pro Val Met
             20                  25                  30
Lys Gln Ser Ile Gln Lys Ile Phe Lys Glu Ser Glu Val Ser Ser Tyr
         35                  40                  45
Trp Glu Ile Ser Ser Leu Tyr Asp Tyr Glu Phe Phe Lys Pro Ile Leu
     50                  55                  60
Asp Gln Leu Gln Ser Asp Gln Val Leu Phe Ser Ile Val Ser Phe Ile
 65                  70                  75                  80
Val Leu Ile Val Ala Cys Ser Asn Ile Val Thr Met Ser Ile Leu Leu
                 85                  90                  95
Val Asn Asn Lys Lys Lys Glu Ile Gly Ile Leu Lys Ala Met Gly Val
            100                 105                 110
Ser Ser Ser Arg Leu Gln Leu Val Phe Gly Leu Cys Gly Ala Cys Ser
        115                 120                 125
Gly Leu Val Gly Ala Leu Leu Gly Ser Ile Leu Ala Ala Leu Thr Leu
    130                 135                 140
Lys Asn Leu Gly Val Leu Thr His Trp Leu Ser Lys Leu Gln Gly Arg
145                 150                 155                 160
Glu Ala Phe Asn Pro Ser Phe Phe Gly Glu Gln Leu Pro Gln Asp Phe
                165                 170                 175
His Leu Pro Thr Val Ile Cys Leu Ser Leu Gly Ala Leu Val Leu Ala
            180                 185                 190
Ala Ile Ser Gly Ala Ile Pro Ala Gln His Val Ala Arg Met Gln Val
        195                 200                 205
Ser Asp Ile Leu Lys Ser Glu
    210                 215
<210>295
<211>332
```

<212>PRT
<213>Chlamydia trachomatis
<400>295

```
Val Gly Phe Tyr Leu Ala Ser Lys Ile Pro Lys Gly Val Met Lys Leu
  1               5                  10                  15
Glu Leu Leu Leu Ala Phe Lys Tyr Leu Ile Pro Lys Arg Lys Arg Leu
             20                  25                  30
Ser Ser Ser Ile Val Ser Ala Phe Ser Ile Gly Ile Val Ala Leu Val
         35                  40                  45
Val Trp Leu Ser Val Val Phe Met Ser Val Ile His Gly Leu Gln Gln
     50                  55                  60
Arg Trp Val Gly Asp Leu Ala Ser Leu His Ser Ser Ile Arg Ile Glu
 65                  70                  75                  80
Pro Ser Asp Lys Tyr Tyr Glu Ser Tyr Tyr Tyr Gln Ile Asp Ser His
                 85                  90                  95
Ala Glu Ala Ser Gln Tyr Ile Tyr Lys Thr Ile Gly Glu Lys Leu Leu
            100                 105                 110
Cys Glu Gln Thr Asp Pro Tyr Asp Pro Asp Val Asp Phe Leu Leu Pro
        115                 120                 125
Glu Ala Phe Pro Asp Pro Glu Phe Ser Asp Asn Gly Glu Met Ile Asp
    130                 135                 140
Pro Val Arg Thr Ala Asn Glu Arg Met Leu Ser Leu Phe Ser Ser Arg
145                 150                 155                 160
Lys Gly Ser Phe Val Glu Phe Glu Glu Gly Met Gly His Val His Met
                165                 170                 175
Asp Arg Ala Phe Arg Gly His Lys Gly Glu Pro Arg Ala Leu Ser Gln
            180                 185                 190
Tyr Ile Ala Tyr Ser Ser Asp Ile Leu Tyr Gln Gln Arg Val Leu Pro
        195                 200                 205
Phe Glu Glu Thr Asp Tyr Ser Thr Glu Val Leu Asn Arg Phe Asn Ala
    210                 215                 220
Ser Ser Glu Gly Trp Leu Ala Asp Phe Leu Val Leu Gln Glu Lys Phe
225                 230                 235                 240
Arg Gly Met Ser Val Ile Leu Pro Val Val Tyr Arg Asp Gln Gly Tyr
                245                 250                 255
Arg Val Gly Asp Thr Ala Ser Leu Ser Val Phe Ser Val Lys Lys Glu
            260                 265                 270
Gly Glu Val Arg Phe Pro Leu Arg Val Ile Gly Phe Tyr Asn Pro Gly
        275                 280                 285
Val Ser Pro Phe Gly Gly Lys Thr Ile Phe Ile Asp Lys Glu Leu Ala
    290                 295                 300
Ala Ser Ile Arg Ser Glu Ser Glu Gly Leu Val Cys Ile Met Ala Gly
305                 310                 315                 320
Arg Tyr Phe Phe Leu Val Phe Lys Ile Ser Leu Ser
                325                 330
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<400>296

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Phe Ala Ala Pro Val Glu Ala Pro Gly Phe Pro Ser Ile Pro Glu Thr
             20                  25                  30
Tyr Ile Thr Ile Asn Asp Lys Glu Leu Gly Leu Gln Glu His Cys Arg
         35                  40                  45
Gly Val Asn Val Leu Ser Cys Gly Tyr Asn Leu Val Gly Met Phe His
     50                  55                  60
Thr Pro Thr Thr Pro Met Pro Leu Gly Gly Tyr Pro Thr Val Ile Phe
 65                  70                  75                  80
Phe His Gly Phe Arg Gly Asn Cys Thr Gly Lys Asp Gly Val Tyr Arg
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                85                  90                  95
Asp Leu Ala Arg Leu Leu Thr Ala Asn Gly Ile Ala Val Ala Arg Phe
            100                 105                 110
Asp Met Ala Gly Cys Gly Asn Ser Glu Gly Ile Cys Asp Gln Ile Pro
        115                 120                 125
Ala Arg Thr Tyr Leu Arg Asn Gly Glu Asp Ile Leu Ala Thr Val Ala
    130                 135                 140
Lys Tyr Pro Glu Val Asn Pro His Arg Ile Gly Ile Ala Gly Val Ser
145                 150                 155                 160
Leu Gly Cys His Thr Thr Ile His Leu Ala Ser Thr Tyr Arg Pro Arg
                165                 170                 175
Asp Tyr Thr Val Gln Ala Ile Ser Val Trp Ala Pro Ile Ala Asp Gly
            180                 185                 190
Val Ile Leu Leu Lys Glu Ile Cys Ala Thr Ile Gly Leu Thr Met Thr
        195                 200                 205
Gln Phe Ser Asp Met Gly Glu Val Gly Lys Ala Phe Gly Phe Lys Gln
    210                 215                 220
Leu Pro Leu Lys Leu Cys Arg Asp Asp Ile Asp Phe Phe Leu Gly Ile
225                 230                 235                 240
Gln Asp His Ile Leu Leu Leu Ser Leu Pro Arg Arg Ile Pro Val Leu
                245                 250                 255
His Gln Gln Gly Leu Glu Asp Arg Val Val Ser Thr Ala His Gln Arg
            260                 265                 270
Leu Phe Leu Gly Ala Ala Pro Ala Gln Met Leu Ser Lys Ser Tyr Pro
        275                 280                 285
Glu Thr Pro His Glu Ile Ala Leu Ser Pro Tyr Arg Gln Glu Val Leu
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Gln Glu Ile Leu Thr His Phe Gln Ser Xaa Leu
305                 310                 315
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<400>297
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Ile Met Gly Ala Asn Pro Ser Gly Leu Ile Leu Ala Ser Ile Leu Gln
             20                  25                  30
Gln His Arg Ala Arg Ile Lys Val Ile Asp Ser Arg Asp Ser Ile Thr
         35                  40                  45
Ala Ser Leu Pro Leu Pro Leu His Ser Leu Pro Val Val Leu Ser Ser
     50                  55                  60
Ser Ser Leu Glu Leu Leu Asp Asn Ile Asn Leu Leu Gly Asp Leu Leu
 65                  70                  75                  80
Asp Lys Gly Arg Lys Ile Phe Gly Ala Arg Tyr His Trp Lys Gln Arg
                 85                  90                  95
Thr Val Leu Phe Lys Phe Asn Gln Ser Ser Ala Ser Arg Cys Pro Phe
            100                 105                 110
Ser Leu Leu Ile Ser Tyr Asn Glu Leu Val Thr His Leu Leu Glu Glu
        115                 120                 125
Phe Glu Arg Leu Gly Gly Val Val Asn Trp Ala Thr Arg Pro Val Thr
    130                 135                 140
Gln Val Glu Gln Asn Leu Phe Ile Glu Ser Thr Lys Ser Ser Ser Gln
145                 150                 155                 160
Val Tyr Glu Gly Arg Glu Ile Phe Thr Pro Lys Trp Ile Ile Ala Cys
                165                 170                 175
Glu Met Asp Ala Asp Pro Asp Leu Lys Asp Leu Leu Lys Thr Gln Ile
            180                 185                 190
Lys Thr Lys Lys Ile His Lys Glu Ala Leu Phe Val Asp Cys Glu Glu
        195                 200                 205
Gly Glu Pro Phe Glu Glu Ser His Ile His Leu Leu Pro Val Thr Lys
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09624.0020.PCUS00

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Ser Phe Val Asn Phe Val Phe Tyr Asn Pro Tyr Arg Gly Ser Arg Gln
225                 230                 235                 240
Leu Tyr Leu Ala Asn Thr Ser Gly Ser Leu Ser Ser Lys Phe Lys Asn
                245                 250                 255
Lys Leu Leu Tyr Thr Tyr Ser Leu Ala Leu Ala Glu Asp Pro Leu Ser
            260                 265                 270
Ile Ser Ser Ser Leu Leu Gln Tyr Pro Phe Cys His Asp Arg Tyr Ile
        275                 280                 285
Phe Leu Gly Ser Ile Ala Asn Asn Leu Ser Phe Ser Tyr Leu Ser Gly
    290                 295                 300
Val Asn Ser Asn Ile His Asp Ala Phe Asn Leu Gly Trp Lys Leu Leu
305                 310                 315                 320
Pro Val Ile Lys Lys Ala Ala Ser Ser Gln Leu Ile Leu Ser Lys Glu
                325                 330                 335
Leu Lys Thr Ser His Val Leu Pro His Phe Asn Glu Val His Gln Lys
            340                 345                 350
Arg Ala Thr Lys Leu Leu Phe Ser Asn Met Tyr Thr Pro Ala Leu Met
        355                 360                 365
Tyr Tyr Tyr Leu Lys Gly Cys Lys Gln Leu Asp Ala Ala Glu Gly Glu
    370                 375                 380
Leu Tyr Tyr Pro Ser His Arg Ala Ser Lys Tyr Glu Ala Ser Asp Ile
385                 390                 395                 400
Ile Lys Val Ser Pro Asn Asp Lys Glu Ile Gln Gly Pro Arg Pro Gly
                405                 410                 415
Ser Arg Ala Leu Asp Ile Arg Leu Asp Thr Gly Asn Tyr Leu Leu Asp
            420                 425                 430
Ser Leu Lys Asn Ala Lys His Leu Leu Val Phe Phe Lys Glu Arg Pro
        435                 440                 445
Asp Leu Val His Ala Leu Leu Glu Glu Tyr Gly Glu Trp Val Asp Val
    450                 455                 460
Ile Val Thr Glu Asp Pro Lys Val His Lys Leu Tyr His Ala Asn Pro
465                 470                 475                 480
Glu Ser Leu Phe Ile Ile Arg Pro Asp Arg Tyr Ile Gly Tyr Arg Thr
                485                 490                 495
His Thr Phe Lys Leu His Glu Leu Ile Ser Tyr Leu Leu Arg Ile Phe
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Ala Ala Glu Asn Ala Asn
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Tyr Pro Asp Leu Gly Asp Gln Asn Ile Lys His Leu Glu Lys Ile Arg
            20                  25                  30
Asp Val Tyr Gly Leu Asp Gly Val Ala Glu Leu Arg Val Ala Glu Ala
        35                  40                  45
Ala Leu Leu Gly Val Gln Lys Leu Pro Glu Glu Gln Lys Gln Glu Ser
    50                  55                  60
Leu Lys Ser Ala Val Lys Ala Leu Arg Ala Asp Ala Lys Val Leu Asn
65                  70                  75                  80
Lys Lys Phe Lys Lys Leu Pro Glu Ser Tyr Gln Pro Gln His Ser Glu
                85                  90                  95
Val Thr Gly Val Gln Gly Val Thr Glu Gln Glu Ser Arg Asp Asp Val
            100                 105                 110
Leu Val Ala Gln Asp Met Ala Ala Ile Glu Glu Leu Gln Asp Gln Tyr
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His Ala Ala Cys Leu Gln Phe Glu Ser Val Ser Met Arg Phe Leu Ala
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09295.0006.PCUS00

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Glu Gln Arg Lys Ala Lys Phe Leu Glu Lys Leu Leu Ile Gln Lys Arg
145                 150                 155                 160
Arg Asp Val Ser His Leu Ser His Gln Glu Ala His Tyr Thr Gln Val
                165                 170                 175
Val Ser His Leu Lys Glu Arg Ile Ser Met Arg Lys Gly Ala Ser Thr
            180                 185                 190
Gln His Ala Ser Lys Glu Glu Ile Ser Thr Lys Met Arg Glu Leu Leu
        195                 200                 205
Ser Leu Asp Asp Gln Leu Leu Lys Ala His Thr Ala Gln Asp Val Asn
    210                 215                 220
Trp Asp Asn Ser Ile Asn Gly Gln Leu Gln Gln Gln Phe Lys Lys Leu
225                 230                 235                 240
Ser Glu Glu Gly Ser Leu Gln Lys Val Lys Ala Leu Leu Glu Leu Asn
                245                 250                 255
Met Cys Leu Gly Asn Ala Gly Gln Thr Leu Tyr His Ser Arg Leu Lys
            260                 265                 270
Arg Glu Val Phe Glu Ala Ser Cys Ser Asn Thr Ser Gln Gln Leu Leu
        275                 280                 285
Gln Tyr Gly Glu Asp Leu Phe Ala Ser Tyr Asp Gly Ser Asp Arg Ser
    290                 295                 300
Ala Leu Leu Arg Phe Val Leu Gly Ser Gly Tyr Glu Met Ile Ser Glu
305                 310                 315                 320
Ala Ser Ser Glu Leu Lys Ser Leu Arg Lys Arg Trp Lys Arg Ser Ala
                325                 330                 335
Ser Gln Ala Ala Ile Ala Pro Glu Asp Tyr Glu Lys Val Cys Arg Val
            340                 345                 350
Leu Glu Arg Phe Leu Lys Ala Arg Asp Ser Leu Arg Pro Lys Leu Gly
        355                 360                 365
Leu Pro Leu Gly Lys Ser Ser Asp Ala Thr Val Gly Leu Gln His Gln
    370                 375                 380
Ile Arg Asp Asn Gln Arg Val Lys Ala Arg Val Thr Ala Cys Tyr Gln
385                 390                 395                 400
Glu Ser Cys Arg Asn Val Leu Gln His Leu Glu Asp Trp Val Arg Lys
                405                 410                 415
Thr Arg Gln Glu Ser Ala Glu Cys Gln Lys Val Glu Thr Lys Ile Arg
            420                 425                 430
Glu Phe Cys Gln Lys Ala Gly Ser Lys Glu Asn Leu Ala Glu Ser Thr
        435                 440                 445
Glu Met Leu Phe Ser Ser Leu Glu Glu Asp Leu Asn Lys Ile Pro Leu
    450                 455                 460
Asp Val Leu Arg Ala Ile Leu Arg Ser Leu Ser Ser Lys Val Leu His
465                 470                 475                 480
Ile Arg Asp Gln Lys Leu Glu Leu Glu Lys Leu Glu Glu Gln Phe Ala
                485                 490                 495
Lys Thr Asn Ile Ile Val Lys Ala Lys Glu Ala Glu Phe Glu Lys Asn
            500                 505                 510
Gly Glu Val Trp His Asn Gln Tyr Gln Met Leu Lys Ser Gln Met Glu
        515                 520                 525
Lys Leu Glu Ser Gln Lys Arg Arg Leu Thr Asp Lys Lys Glu
    530                 535                 540
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Ala Asn Pro Ser Thr Pro Pro Ser Asn His Ser Gly Leu Ser Leu Gln
             20                  25                  30
Gly Arg Leu Arg Ala Ser Ser Gln Gln Cys Thr Gln Ala Gly Gln Gly
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          35                  40                  45
Asp Pro Gln Pro Leu Ser Pro Glu Ser Arg Gly Leu Thr Ser Asn Phe
     50                  55                  60
Ser Thr Arg Arg Asp Leu Ile Asp Val Val Glu Glu Ser Ile Glu Thr
 65                  70                  75                  80
Ala Lys Gly Ser Glu Leu Lys Lys Leu Arg Ile Tyr Glu Ile Ala Leu
                 85                  90                  95
Lys Ile Leu Thr Ile Ile Gly Ala Ala Ile Leu Phe Ala Val Pro Leu
            100                 105                 110
Cys Met Leu Leu Gly Val Pro Leu Trp Ile Pro Ile Val Thr Cys Ile
        115                 120                 125
Gly Val Gly Ile Ala Phe Ser Ile Ala Lys Gly Cys Leu Gln Lys Arg
    130                 135                 140
Cys Gln Gln Ile Arg Glu Glu Tyr Arg Ala Leu His Leu Tyr His Arg
145                 150                 155                 160
Tyr Leu Leu Ser Asn Lys Asp Ser Ile Asp Gly Thr Leu Leu Ser Arg
                165                 170                 175
Phe Asp Ile Arg Phe Arg Lys Ala Glu Glu Lys Leu His Gly Leu Asp
            180                 185                 190
Leu Asp Lys Arg Glu Ala Asn His Pro Leu Glu Ala Asp Lys Arg Tyr
        195                 200                 205
Asp Phe Ala Gly Leu Ala His Gln Arg Tyr Gln Val Asp Ala Ala Leu
    210                 215                 220
Gly Ile Ser Ser Ser Gln Asp Ala Phe Trp Arg Gly Val Ala Gln Gln
225                 230                 235                 240
Val Lys Ser Val Lys Asp Asp Val Val Leu Gly Asp Lys Ala Ser Thr
                245                 250                 255
Asp Leu Tyr Pro Ile Ala Gln Gln Ala Leu Gln Ala Ala Gly Val Gly
            260                 265                 270
Phe Ser Gly Ala Ala Gly Lys Glu Ser Leu Leu Asp Leu Ala Lys Ser
        275                 280                 285
Leu Ser Ser Leu Phe Ala Trp Gly Ser Gln Val Gly Lys Asp Ser His
    290                 295                 300
Glu Ala Leu Gln Arg Tyr Gln Met Arg Phe Leu Ser Ser Pro Ile Leu
305                 310                 315                 320
Ala Thr Trp Cys Gly Ala Gly Phe Ser Thr Ser Ala Gln Asp Phe Val
                325                 330                 335
Leu Lys Gly Lys Asn Val Leu Asp Ile Ala Ser Glu Asn His Thr Lys
            340                 345                 350
Met Gln Asn Ala Ile Lys Cys Val Gln Leu Val Ser Val Leu Gly Lys
        355                 360                 365
Met Arg Asn Trp Lys Glu Lys Ile Asp Thr Leu Ile Gln Asn Lys Asn
    370                 375                 380
Leu Asp Gln Asp Ser Leu Arg Lys Leu Tyr Gln Asp Ile Glu Lys Ala
385                 390                 395                 400
Met His Lys Val Cys Ile Glu Asp Gly Val Ser Ala Ser Ile Gln Ala
                405                 410                 415
Arg Val Arg Lys Val Thr Gln Lys Tyr Leu Arg Gln Asp Leu Gln Glu
            420                 425                 430
Leu Leu Asn Lys Lys Ala Pro Leu Asn Glu Ser Asp Leu Ser Lys Met
        435                 440                 445
Gln Lys Gly Ile Ser Ser Cys Ala Asn Leu Val Val Thr Leu Leu Glu
    450                 455                 460
Ser Gln Leu Gly Ile Ser Glu Gln Thr Ser Ile Lys Glu Val Glu Glu
465                 470                 475                 480
Ser Ile Tyr Arg Asp Leu Ile Asp Thr Ile Leu Gln Met Gly Ser Ala
                485                 490                 495
Ala Gly Gly Val Thr Pro Leu Val Asp Gly Val His Lys Ala Ile Arg
            500                 505                 510
Glu Gly Lys Thr Leu Arg Ser Glu Leu Ser Arg Ala Met Ser Leu His
        515                 520                 525
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US 2004/0204574 A1 Oct. 14, 2004

Pro Arg Gln Ser Phe Leu Gly Val Gln Ser Ala Val Glu Lys Leu Gln
530 535 540
Ala Phe Ile Arg Asp Pro Lys Trp Gly Ala Ser Ala Val His Thr Ser
545 550 555 560
Ala Glu Glu Thr Leu Ala Gln Lys Gln Lys Phe Val Ser Asp Leu Thr
565 570 575
Arg Ile Gln Thr Ser Leu Ala Asp Trp Arg Glu Arg Tyr Gly Leu Phe
580 585 590
Glu Glu Thr Lys Leu Asn His Ile Val Ser Thr Asp Phe Val Ser Arg
595 600 605
Thr Glu Ala Phe Leu Asp Thr Leu Lys Asn Val Ala Glu Ala Cys Ser
610 615 620
Leu Glu Gln Ala Val Ala Glu Leu Lys Asp Cys Glu Asp Ala Met Lys
625 630 635 640
Ala Asp Leu Thr His Val Glu Gln Lys Met Asn Pro Thr Glu Ile Glu
645 650 655
Ser Ala Arg Glu Glu Phe Lys Gln Leu Met Glu Glu Leu Ala Gly Ile
660 665 670
Gln Glu Gln Leu Glu Gln Ile Ala Arg Pro Ile Tyr Glu Glu Gly Val
675 680 685
Ser Gly Lys Arg Leu Leu Leu Asn Thr Val Phe Ser His Pro Glu Ala
690 695 700
Leu Arg Lys Lys Val Gln Ala Lys Glu Thr Leu Leu Glu Ala Leu Thr
705 710 715 720
Lys Gly Glu Gln Pro Ser Pro Thr Lys Lys Lys Thr Leu Lys Gln Leu
725 730 735
Ser Glu Gly Cys Glu Tyr Phe Ser Ser Leu Val Ser Lys Ile Asn Ala
740 745 750
Val Lys Thr Ile Leu Glu Gly Ser Arg Gly Lys Lys Ile Ala Ser Gln
755 760 765
Asp Ile Arg Gln Leu Ile Gly Leu Thr Asp Glu Leu Ala Leu Lys Leu
770 775 780
Ser Ser Phe Gln Gln Asp Ser Leu Glu Ser Leu Leu Tyr Gly Leu Glu
785 790 795 800
Gly Leu Ser Ile Pro Ala Ala Ser Ile Glu Gln Lys Lys Gly Ser Pro
805 810 815
Lys Ser Ser Ser Ile Ala Glu Lys Val Val Tyr Ala Ser His Gln Arg
820 825 830
Val Tyr Asn Gly Val Lys Ala Lys Val Asn Arg Thr Leu Glu Ala Phe
835 840 845
Ser Gln Leu Ile Lys Gly Leu Arg Gly Ser Leu Arg Asn Ala Met Ile
850 855 860
Thr Lys Ala Val Val Ala Ala Ile Leu Ser Val Ala Phe Ser Cys Leu
865 870 875 880
Ala Ile Ala Leu Phe Ser Val Gln Leu Thr Trp Leu Pro Ile Met Leu
885 890 895
Cys Val Leu Ala Leu Val Leu Glu Ala Ile Pro Ser Ala Leu Ser Ile
900 905 910
Trp Val Glu Lys Arg Asn Trp Lys Tyr Glu Val Ala Ser Leu Ala Lys
915 920 925
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930 935 940
Lys Ile Ser Ser Ile
945

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<400>300
Arg Arg Cys Gly Ala Val Leu Arg Met Ala Ile Asp Gly Val Val Ile
1 5 10 15

09/534,705 Doc. 8 Page 50 of 50

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Lys Val Asp Asn Ile Ala His Gln Asp Arg Leu Gly Leu Thr Ser Lys
            20                  25                  30
His Tyr Arg Trp Ala Ile Ala Tyr Lys Tyr Ala Pro Glu Arg Ala Glu
        35                  40                  45
Thr Ile Leu Glu Asp Ile Val Phe Gln Val Gly Lys Thr Gly Ile Leu
    50                  55                  60
Thr Pro Val Ala Glu Leu Ala Pro Val Phe Leu Ser Gly Ser Arg Val
65                  70                  75                  80
Ser Arg Ala Ser Leu Tyr Asn Gln Asp Glu Ile Glu Lys Lys Asp Ile
                85                  90                  95
Arg Ile Gly Asp Ser Val Tyr Val Glu Lys Gly Gly Glu Val Ile Pro
            100                 105                 110
Lys Ile Val Gly Ile Asn Leu Ala Lys Arg Ser Leu Glu Ser Glu Pro
        115                 120                 125
Trp Lys Met Pro Ser Leu Cys Pro Val Cys His Glu Pro Val Val Lys
    130                 135                 140
Glu Lys Val Ser Val Arg Cys Ile Asn Pro Leu Cys Ser Gly Gly Met
145                 150                 155                 160
Leu Glu Lys Ile Cys Phe Phe Ala Ser Lys Ser Ala Leu Asn Ile Asp
                165                 170                 175
His Leu Gly Glu Lys Val Val Thr Lys Leu Phe Glu Val Gly Leu Ile
            180                 185                 190
Ser Ser Cys Ser Asp Ile Phe Ala Leu Thr Glu Glu Asp Leu Lys Gln
        195                 200                 205
Val Pro Gly Phe Lys Asp Arg Ser Ile Gln Asn Leu Leu Ala Ser Ile
    210                 215                 220
Ala Gly Ala Lys Lys Val Ala Leu Asp Arg Leu Leu Thr Ala Leu Ser
225                 230                 235                 240
Ile Pro Phe Val Gly Ser Ser Gly Ala Ile Ala Leu Ala Asp His Phe
                245                 250                 255
Gly Thr Leu Asp Lys Val Ile Glu Ala Ser Leu Asp Glu Leu Met Ser
            260                 265                 270
Ile Glu Gly Ile Gly Pro Lys Val Ala Ala Ser Ile Val Ala Phe Phe
        275                 280                 285
Ser Lys His Glu Asn Arg Glu Glu Ile Arg Arg Met Gln Glu Leu Gly
    290                 295                 300
Val Gln Val Leu Ser Lys Gln Ser Asp Lys Glu Ala Pro Leu Gln Gly
305                 310                 315                 320
Lys Val Phe Val Leu Thr Gly Thr Leu Gln Gln Met Thr Arg Thr Gln
                325                 330                 335
Ala Glu Glu Arg Ile Arg Ser Leu Gly Gly Lys Val Ser Ser Ser Val
            340                 345                 350
Ser Lys Ser Thr Tyr Ala Val Ile Ala Gly Ser Glu Ala Gly Gly Lys
        355                 360                 365
Leu Lys Lys Ala Gln Asp Leu Gly Leu Ser Ile Trp Asn Glu Ser Lys
    370                 375                 380
Leu Ser Arg Ile Leu Asp Ala Lys Ser Val Ser
385                 390                 395
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Phe Leu Ser Tyr Glu Ala Phe Glu Glu Leu Asn Ala Cys Gln Arg Glu
            20                  25                  30
Gln Gly Lys Leu Glu Phe Ala Asn Pro Arg Asn Ala Ala Gly Gly Thr
        35                  40                  45
Leu Lys Leu Leu Ser Ser Lys Glu Ala Ala Lys Arg Lys Leu Asp Leu
    50                  55                  60
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Ser Val Tyr Gly Leu Ile Thr Asp Gln Lys Lys Arg Ser His Phe Glu
 65                  70                  75                  80
Asn Leu Gln Leu Cys Ser Gln Trp Gly Phe Phe Val Ala Gly Met Pro
                85                  90                  95
Lys Gln Cys Arg Ser Arg Gln Glu Val Val Glu Arg Ile Arg Glu Ile
            100                 105                 110
Glu Glu Met Arg Arg Ser Ala Pro Asp Gly Tyr Arg Trp Ser Arg His
        115                 120                 125
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Val Glu His Asp Arg Arg Tyr Tyr Ala Leu Asn Gln Pro Thr Ile Ser
            20                  25                  30
Asp Tyr Ser Tyr Asp Met Lys Met Arg Glu Leu Gln Glu Ile Glu Val
        35                  40                  45
Gln His Pro Glu Trp Lys Val Ser Trp Ser Pro Thr Met Tyr Leu Gly
    50                  55                  60
Asp Arg Pro Ser Gly Gln Phe Pro Val Val Pro His Ser Ser Pro Met
 65                  70                  75                  80
Leu Ser Ile Ala Asn Val Tyr Ser Leu Gln Glu Leu Glu Glu Phe Phe
                85                  90                  95
Ser Arg Thr Glu Lys Leu Leu Gly Tyr Ser Pro Gly Tyr Ser Leu Glu
            100                 105                 110
Leu Lys Ile Asp Gly Ile Ala Val Ala Ile Arg Tyr Glu Lys Arg Leu
        115                 120                 125
Phe Ala Gln Ala Leu Ser Arg Gly Asn Gly Val Lys Gly Glu Asp Ile
    130                 135                 140
Thr Ala Asn Val Ser Thr Ile Arg Ser Leu Pro Met Arg Leu Pro Gln
145                 150                 155                 160
Glu Gly Ser Arg Gly Ser Arg Ser Ala Arg Arg Ser Val Ser Phe Ile
                165                 170                 175
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Ser Gln Asn Ser Asp Met Asp Leu Trp Ser Arg Asp Val Leu Ala Glu
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His Arg Phe Ile Lys Lys Arg Tyr Ile Leu Lys Ile Leu Pro Ser Glu
            20                  25                  30
Leu Ser Ser Ser Glu Asn Phe Met Arg Val Phe Gln Glu Val Ile Val
        35                  40                  45
Gln Leu Ala Ala Ile Arg His Ala Ser Leu Val Ala Ile Glu Asn Val
    50                  55                  60
Ser Arg Glu Gly Asp Arg Tyr Phe Val Val Thr Glu Glu Asn Gly Gly
 65                  70                  75                  80
Thr Ile Ser Leu Ala Gln Tyr Leu Ser Gly Arg Lys Leu Ser Glu Glu
                85                  90                  95
Glu Val Val His Leu Ile Gln Gln Leu Cys Asp Ala Leu Glu Leu Val
            100                 105                 110
His Ser Ile Gly Leu Ala His Gly Gln Ile His Leu His Ser Val His
        115                 120                 125
Val Ser Phe Phe Asn Gly Ile Ala Asn Ile Tyr Leu Pro Glu Val Gly
    130                 135                 140
Phe Ala Ser Leu Leu Arg Glu Arg Met Phe Ser Thr Ile Met Gln Ser
145                 150                 155                 160
Gly Ser Ala Arg Glu Ser Ile Thr Arg Ile Arg Asp Leu Leu Met Phe
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                165                 170                 175
Glu Ala Pro Glu Glu Gln Glu Val Phe Gly Arg Glu Ala Asp Val Tyr
            180                 185                 190
Ser Val Gly Val Leu Ala Tyr Tyr Leu Leu Val Gly Ser Phe Pro Trp
        195                 200                 205
Gly Ser Phe Pro Lys Pro Ser Leu Cys Met Pro Asp Ser Trp Tyr Asp
    210                 215                 220
Trp Asp Gly Phe Ile Leu Ser Cys Leu Gln Gln Gln Arg Glu Ala Arg
225                 230                 235                 240
Pro Lys Cys Leu Arg Glu Ala Leu Arg Arg Lys Thr Ser Gly Glu Gln
                245                 250                 255
Leu Gln Val Thr Leu Asp Ser Cys Arg Glu Pro Leu Arg Glu Met Glu
            260                 265                 270
Ile Glu Asp Thr Pro Thr Glu Leu Gly Pro Pro Ser Ala Leu Ile Arg
        275                 280                 285
Glu Gly Glu Arg Leu Cys Glu Val Lys Glu Glu Gln His Ala Phe Val
    290                 295                 300
Leu Val Glu Ala Lys Ser Ile Asp Glu Ala Met Val Thr Thr Val Asp
305                 310                 315                 320
Ser Glu Glu Glu Leu Glu Ser Ser Glu Gly Tyr Ala Asn Pro Leu Gln
                325                 330                 335
Ser Leu Leu Ala Arg Glu Pro Val Val Ser Arg Tyr Val Glu Val Glu
            340                 345                 350
Arg Glu Glu Ile Lys Pro Gln Pro Leu Leu Thr Glu Met Ile Phe Ile
        355                 360                 365
Glu Gly Gly Glu Phe Ser Arg Gly Ser Gly Asp Gly Gln Arg Asp Glu
    370                 375                 380
Leu Pro Val His Asn Ile Thr Leu Pro Gly Phe Phe Leu Asp Ile His
385                 390                 395                 400
Pro Val Thr Asn Glu Gln Phe Val Arg Phe Leu Glu Cys Val Gly Ser
                405                 410                 415
Glu Gln Asp Glu His Tyr Asn Glu Leu Ile Arg Leu Lys Asp Ser Arg
            420                 425                 430
Ile Gln Arg Arg Ser Gly Arg Leu Ile Ile Glu Pro Gly Tyr Ala Lys
        435                 440                 445
His Pro Val Val Gly Val Thr Trp Tyr Gly Ala Ser Ser Tyr Ala Cys
    450                 455                 460
Trp Ile Gly Lys Arg Leu Pro Ser Glu Ala Glu Trp Glu Val Ala Ala
465                 470                 475                 480
Ser Gly Gly Lys Leu Gly Leu Arg Tyr Pro Thr Gly Glu Glu Ile Asp
                485                 490                 495
Lys Ser Lys Ala Asn Phe Phe Ser Ser Asp Thr Thr Pro Val Met Ser
            500                 505                 510
Tyr Pro Ser Ser Ile Leu Gly Leu Tyr Asp Met Ala Gly Asn Val Tyr
        515                 520                 525
Glu Trp Cys Gln Asp Trp Tyr Ser Tyr Asp Phe Tyr Glu Ser Ser Ala
    530                 535                 540
Leu Asp Pro Asp Ala Pro Leu Gly Pro Pro Gln Gly Val Tyr Arg Val
545                 550                 555                 560
Leu Arg Gly Gly Cys Trp Lys Ser Leu Lys Asp Asp Leu Arg Cys Ala
                565                 570                 575
His Arg His Arg Asn Asn Pro Gly Ala Ile Asn Ser Thr Tyr Gly Phe
            580                 585                 590
Arg Cys Ala Lys Asp Val Lys
        595
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<213>Chlamydia trachomatis
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09/10/2001 14:40:00

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Phe Pro Thr Phe Val Arg Leu Asn Val Ala Thr Thr Asp Leu Ala Asp
            20                  25                  30
Gly Asn Lys Ser Asn Ala Val Thr Ile Thr Glu Thr Ala Thr Ala Asn
        35                  40                  45
Tyr Val Asn Val Thr Gln Asp Leu Thr Ser Ser Thr Ala Lys Leu Glu
    50                  55                  60
Cys Thr Gln Asp Leu Ile Ala Gln Gly Lys Leu Ile Val Thr Asn Pro
65                  70                  75                  80
Lys Ser Asp Ile Ser Phe Gly Gly Arg Val Asn Leu Ala Asp Asn Thr
                85                  90                  95
Ile Thr Tyr Asn Pro Tyr Asn Asn Gly Gly Gly Glu Val Ala Phe Thr
            100                 105                 110
Asp Ile Asn Ser Arg Gln Gly Lys Gln Tyr Val Pro Tyr Gly Leu Tyr
        115                 120                 125
Lys Asn Gly Ala Pro Lys Ile Ser Met Arg Ser Ala Leu Ser Gly Gly
    130                 135                 140
His Val Gly Ser Gly Asp Thr Arg Gly Trp Gly Ala Glu Val Leu Trp
145                 150                 155                 160
Asp Ala Tyr Thr Gln Gln Arg Glu Asp Leu Glu Asp Lys Ala Val Thr
                165                 170                 175
Phe Ser Pro Ala Asn Arg Gly Lys Leu Tyr Phe Glu Ala Ser Leu Arg
            180                 185                 190
Leu Pro Phe Cys Ser Val Ser Pro Ser Leu
        195                 200
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<213>Chlamydia trachomatis
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Glu Asp Asn Met Lys Lys Pro Val Phe Thr Gly Gly Ala Pro Ile Pro
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Gly Ile Ser Thr Glu Glu Gly Thr Gly Val Lys Asp Gln Asn Leu Trp
            20                  25                  30
Met Arg Asn Ala Thr Leu Lys Val Glu Gly Asp Ala Thr Ile Asp Asp
        35                  40                  45
Thr Leu Thr Ser Arg Asp Leu Lys Val Thr Gly Pro Thr Ile His Thr
    50                  55                  60
Asp Leu Asp Leu Ser Val Gly Gly Asp Val Lys Gly Gly Arg Thr Val
65                  70                  75                  80
Leu Gly Glu Thr Val Leu Glu Gly Asp Phe Asn Ile Lys Cys Asn Gln
                85                  90                  95
Gly Gln Val Pro Gln Phe Thr Asn Leu Ser Asp Pro Leu Ser Ala Arg
            100                 105                 110
Asp Ala Ile Thr Phe Asp Tyr Tyr Arg Asp Arg Ser Thr Gln Ala Tyr
        115                 120                 125
Asn Cys Ala Thr His Arg Asn Gly Ala Leu Val Lys Gly Asn Arg Phe
    130                 135                 140
Ile Asp Leu Arg Met His Asn Ile Asp Asp Ser Glu Ser Tyr Thr Pro
145                 150                 155                 160
Met Tyr Gln Asn Arg Phe Tyr Trp Lys Asp Asn Asp Gln Lys Lys Leu
                165                 170                 175
Tyr Leu Lys Ser Pro Gly Ile Tyr Gln Val Ala Phe Gln Ile Phe Arg
            180                 185                 190
Ser Gly Gly Tyr His Ser Gly Asn Glu Asp Pro Thr Ile Phe Leu Arg
        195                 200                 205
Leu Tyr Thr Ser Ala Tyr Glu Tyr Thr Asn Leu Cys Thr Gly Asp Thr
    210                 215                 220
Arg Gly Phe Asn Pro Glu His Thr Thr Asn Thr Ser Leu Tyr Ser Ile
225                 230                 235                 240
Phe Ser Ile Pro Ser Ile Gly Asn Glu His Pro Phe Ile Gln Val Phe
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                245                 250                 255
Thr Lys Ile His Val Asn Ile Ala Tyr Ser Met Ile Asn Val Ile Trp
            260                 265                 270
Phe Pro Phe Gly Ser Ser Tyr Lys Glu Ala Asp
        275                 280
<210>306
<211>285
<212>PRT
<213>Chlamydia trachomatis
<400>306
Met Ser Asp Ser Asp Lys Ile Ile Asn Asp Cys Arg Phe Asp Phe Asn
  1               5                  10                  15
Thr Thr Val His Gly Asp Leu Leu Ala Ser Asn Leu Thr Thr Glu Gly
            20                  25                  30
Asp Val Thr Val Lys Ser Ile Ser Ala Lys Glu Ser Phe Ser Val Lys
        35                  40                  45
Arg Lys Val Asp Val Asn Glu Asn Asp Ile Ile Val Asn Gly Phe Thr
    50                  55                  60
Gly Ala Ala Gly Tyr Asp Leu Thr Thr Arg Gly Lys Ile Ser Ile Asn
65                  70                  75                  80
Leu Asn Gly Asn Arg Leu Ser Asn Val Lys Cys Pro Glu Lys Asp Ser
                85                  90                  95
Gln Pro Val Pro Ala Asn Tyr Ile Arg Thr Pro Glu Tyr Tyr Phe Cys
            100                 105                 110
Ser Leu Gln Asp Gly Ala Arg Ile Glu Trp Lys Arg Gly Gln Lys Leu
        115                 120                 125
Pro Leu Ile Gly Pro Ser Arg Leu Val Tyr Gln Ser Ser Arg Ile Asn
    130                 135                 140
Glu Phe Ile Arg Phe Val Ser Phe Glu Glu Asn Lys Thr Arg Thr Gln
145                 150                 155                 160
Val Lys Ile Asn Leu Ser Gly Thr Thr Gly Leu Gln Met Leu Ala Lys
                165                 170                 175
Gly Val Tyr Ile Ile Asn Val Gly Val Gly Lys Arg Trp Gly Trp Asn
            180                 185                 190
Asn Gly Tyr Gly Gly Asp Tyr Cys Leu Ala Val Pro Leu Gly Lys Glu
        195                 200                 205
Tyr Ser Glu Ser Ser Thr Phe Ser Arg Gly Gly Tyr Tyr Ala Ser Thr
    210                 215                 220
Ala Val Gly Thr Ala Ile His Ile Arg Lys Glu Ser Thr Asn Pro Asp
225                 230                 235                 240
Gly Pro Phe Ser Ser Ser Asp Thr Glu Leu Met Lys Thr Leu Leu Glu
                245                 250                 255
Val Arg Tyr Lys Gly Gly Asp Tyr Val Asp Lys Ser Ala Leu Ser Thr
            260                 265                 270
Leu Tyr Phe Gly Val Leu Val Tyr Pro Glu Ile Gly Gly
        275                 280                 285
<210>307
<211>160
<212>PRT
<213>Chlamydia trachomatis
<400>307
Leu Ile Leu Arg Met Arg Arg Asp Arg Lys Glu Leu Met Leu Lys Lys
  1               5                  10                  15
Pro Asn Arg Asn Asp Pro Cys Pro Cys Gly Ser Gly Lys Lys Tyr Lys
            20                  25                  30
Gln Cys Cys Leu Lys Xaa Gln Ala Leu Thr Ala Arg His Thr Pro Glu
        35                  40                  45
Gly Lys Phe Lys Phe Ser Ile Thr Ala Ser Pro Ala Ala Gly Ala Ser
    50                  55                  60
Thr Glu Gly Phe Thr Lys Leu Phe Arg Gln Ser Val Asp Ser Tyr Thr
65                  70                  75                  80
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Ser Glu Gln Lys Glu Gly Met Ser Arg Phe Leu Ile Thr Lys Asn Lys
85 90 95
Glu Pro Ile Gly Lys Arg Ala Ile Arg Lys Ala Lys Ala Lys Glu Glu
100 105 110
Arg Ile Ile Ser Glu Lys Leu Ser Gln His Glu Phe Gln Val Met Asp
115 120 125
Thr Glu Val Ser Gly Glu Asp Ile Gln Ser Ser Leu Asp Tyr Glu Gln
130 135 140
Phe Leu Pro Thr Glu Glu Asp Tyr Arg Val Gln Lys Glu Glu Asp Ser
145 150 155 160
<210>308
<211>310
<212>PRT
<213>Chlamydia trachomatis
<400>308
Phe Tyr Arg Asn Thr Gln Lys Tyr Phe Met Tyr Val Arg Ser Ile Phe
1 5 10 15
Phe Ser Ile Ile Ala Phe Leu Thr Val Gly Cys Ser Phe Ser Pro Pro
20 25 30
Glu Ser Gly Leu Ile Ile Ala Ile His Asp Asp Pro Arg Ser Leu Ser
35 40 45
Pro Glu Lys Gly Glu Asn Ala Phe His Phe Ser Leu Ser Lys Ala Leu
50 55 60
Phe Ala Thr Leu Phe Arg Glu Glu Leu Ser Gly Leu Thr Pro Ala Leu
65 70 75 80
Val Ser Ser Tyr Gln Ile Ser Glu Asp Gly Arg Phe Tyr Arg Phe Cys
85 90 95
Ile Arg Lys Asp Ala Lys Trp Ser Asp Gly Ser Leu Leu Leu Ala Glu
100 105 110
Asp Val Ile Ala Ala Trp Glu His Thr Lys Gln Ala Gly Arg Tyr Ser
115 120 125
Leu Leu Phe Glu Lys Leu Ser Phe Arg Ala Ser Ser Ser Ser Glu Ile
130 135 140
Leu Ile Glu Leu Lys Glu Pro Glu Pro Gln Leu Leu Ala Ile Leu Ala
145 150 155 160
Ser Pro Phe Phe Ala Val Tyr Arg Pro Glu Asn Pro Phe Leu Ser Ser
165 170 175
Gly Pro Phe Met Pro Lys Thr Tyr Val Gln Gly Gln Thr Leu Val Leu
180 185 190
Gln Lys Asn Pro Tyr Tyr Tyr Asp His Ala His Val Glu Leu His Ser
195 200 205
Ile Asp Phe Arg Ile Ile Pro Asn Ile Tyr Thr Ala Leu His Leu Leu
210 215 220
Arg Arg Gly Asp Val Asp Trp Val Gly Gln Pro Trp His Gln Gly Ile
225 230 235 240
Pro Phe Glu Leu Arg Thr Thr Ser Ala Leu Tyr Thr His Tyr Pro Val
245 250 255
Asp Gly Thr Phe Trp Leu Ile Leu Asn Pro Lys Asp Pro Val Leu Ser
260 265 270
Ser Leu Ser Asn Arg Gln Arg Leu Ile Ala Ala Ile Gln Lys Glu Lys
275 280 285
Leu Val Lys Gln Ala Leu Gly Thr Gln Tyr Arg Val Ala Glu Ser Leu
290 295 300
His Leu Gln Arg Glu Ser
305 310
<210>309
<211>133
<212>PRT
<213>Chlamydia trachomatis
<400>309
Lys Ser Pro Ser Pro Glu Gly Ile Ile Ala His Gln Glu Ala Ser Thr

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  1               5                  10                  15
Pro Phe Pro Gly Lys Ile Thr Leu Ile Tyr Pro Asn Asn Ile Thr Arg
            20                  25                  30
Cys Gln Arg Leu Ala Glu Val Leu Gln Glu Gln Cys Arg Asp Ala Gly
        35                  40                  45
Ile Gln Leu Thr Leu Glu Gly Leu Glu Tyr His Val Phe Val Gln Lys
    50                  55                  60
Arg Ala Thr Gln Asp Phe Ser Val Ser Thr Ala Thr Ser Ile Ala Phe
65                  70                  75                  80
His Pro Leu Ala Lys Ser Lys Phe Asp Gln Thr Ala Leu Asp Asn Phe
                85                  90                  95
Thr Cys Leu Pro Leu Tyr His Ile Glu Tyr Asp Tyr Ile Leu Ser Arg
            100                 105                 110
Pro Leu Asp Gln Ile Val His Tyr Pro Ser Gly Ser Val Asp Leu Thr
        115                 120                 125
Tyr Ala His Phe His
    130
<210>310
<211>262
<212>PRT
<213>Chlamydia trachomatis
<400>310
Thr Lys Pro Ile Phe Phe Ser Leu Ile Glu Gln Asp Glu Arg Leu Thr
  1               5                  10                  15
Pro Leu Ser Tyr Glu Pro Gln Val Glu Ser Ser Leu Gln Val Val Arg
            20                  25                  30
Ser Ile Glu Asn Ala Ser Gly Leu Gly Ser Asp Ala Gln Pro Leu Gln
        35                  40                  45
Glu Leu Phe Arg Lys Leu Leu Leu Leu His Glu Gln Gly Pro Leu Ala
    50                  55                  60
Tyr Ile Gly Leu Val Trp Asn Phe Ala Asn Arg Phe Gly Gly Gly Ile
65                  70                  75                  80
Leu Glu Pro Lys Arg Leu Ser Arg Asp Gly Lys Asn Leu Leu Glu Leu
                85                  90                  95
Leu His Ala Leu Ala Ile Pro Val Asp Leu Ser His Cys Ser Asp Pro
            100                 105                 110
Leu Ala Asp Asp Ile Leu Asp Phe Thr Ala Asp Lys Met Pro Asp Met
        115                 120                 125
Phe Val Leu Ala Cys His Ser Asn Phe Arg Ala Val Gln Asp Ile Glu
    130                 135                 140
Arg Asn Leu Leu Asp Val His Ala Lys Glu Ile Phe Ala Arg Asp Gly
145                 150                 155                 160
Val Ile Gly Leu Asn Gly Val Asn Tyr Phe Val Gly Ala Ser Leu Glu
                165                 170                 175
Asp Ile Lys Lys His Ile Ala His Ala Gln Glu Leu Gly Ile Leu Asp
            180                 185                 190
Ser Leu Val Leu Gly Thr Asp Phe Phe Tyr Thr Glu Glu Glu Lys Phe
        195                 200                 205
Phe Pro Asn Phe Ser Thr Ala Lys Asp His Pro Lys Leu His Ala Leu
    210                 215                 220
Ile Lys Glu Ala Ile Pro Ile Asp Lys Ala Gln Ser Leu Leu Glu Glu
225                 230                 235                 240
Arg Ala Gln Arg Phe Leu Asn Arg Val Val Ser Ala Gln Lys Lys Val
                245                 250                 255
Val Asn His Ile Ala Phe
            260
<210>311
<211>281
<212>PRT
<213>Chlamydia trachomatis
<400>311
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Val Phe Ser Gln Gln Ile Glu Glu Ser Ile Lys Ala Gly Gln Val Phe
  1               5                  10                  15
Ala Phe Pro Thr Asp Thr Val Tyr Gly Leu Gly Val Ser Phe His Ile
            20                  25                  30
Leu Asp Ala Asp Gln Arg Leu Phe Ala Leu Lys His Arg Ser Ser Gln
        35                  40                  45
Lys Ala Leu Ser Val Tyr Val Ser Ser Leu Glu Glu Leu Glu Ala Val
    50                  55                  60
Ala Gln Gln Ser Leu Gly Ala Ser Ser Arg Lys Ile Ile Gln Lys Phe
65                  70                  75                  80
Leu Pro Gly Pro Leu Thr Leu Ile Thr Lys His Asn Asn Pro Arg Phe
                85                  90                  95
Pro Gln Lys Thr Leu Gly Phe Arg Ile Val Asn His Pro Ile Val Gln
            100                 105                 110
Gln Ile Ile Gln Lys Val Gly Pro Phe Leu Ala Thr Ser Ala Asn Leu
        115                 120                 125
Ser Gly Phe Pro Ser Ala Val Ser Ala Asp Glu Val Lys Gln Asp Phe
    130                 135                 140
Pro Glu Glu Asp Ile Val Met Ile Ser Gly Glu Cys Ser Ile Gly Leu
145                 150                 155                 160
Glu Ser Thr Val Ile Asp Pro Glu Glu Arg Ile Val Tyr Arg Glu Gly
                165                 170                 175
Ala Ile Ser Ile Ala Glu Ile Glu Thr Val Leu Gly Ala Pro Cys Ala
            180                 185                 190
Asn Leu Ser Lys Glu Leu Gly Phe Arg Glu Lys Ile Gly Ile His Val
        195                 200                 205
Val Lys Thr Pro Ala Asp Leu Cys Ser Phe Leu Leu Ser Arg Pro His
    210                 215                 220
Phe Lys Gly Val Ile Cys His Gln Pro His Pro His Thr Phe Tyr Ser
225                 230                 235                 240
Val Leu Arg Gln Ala Leu Arg Ser Pro Thr Gln Glu Ile Ile Phe Val
                245                 250                 255
Tyr Asp Leu Cys Asn Thr Glu Tyr Pro Ile Leu Ser Arg Phe Leu Gly
            260                 265                 270
Val Ser Tyr Asp Ser Gly Tyr Ala Leu
        275                 280
<210>312
<211>252
<212>PRT
<213>Chlamydia trachomatis
<400>312
Val Leu Pro Lys Ala Leu Asp Gln Leu Leu Gly Arg Tyr Met Ser Tyr
  1               5                  10                  15
Ser Phe Phe Arg Arg Lys Leu Ala Gly Ile Glu Phe Ile Glu Cys Pro
            20                  25                  30
Gly Asp Pro Glu Ala Pro Val Ile Ile Phe Cys His Gly Tyr Gly Ala
        35                  40                  45
Ser Ala Asp His Leu Thr Phe Phe Pro Thr Met Cys Val Cys Ala Asn
    50                  55                  60
Leu Arg Pro Thr Trp Val Phe Pro His Gly Ile Glu Gln Leu Pro Tyr
65                  70                  75                  80
Gln Leu Gly Gly Gly Arg Ala Trp Phe Pro Leu Asp Thr Val Leu Phe
                85                  90                  95
Glu Lys Leu Ile Ser Ser Gln Glu Ile Thr Pro Asp Thr Asp Arg Leu
            100                 105                 110
Tyr Gln Gln Leu Leu Asp Val Asp Phe Glu Lys Pro Lys Gln Ala Leu
        115                 120                 125
Glu Gly Leu Ile His Glu Leu Glu Arg Asp Arg Ser Glu Val Ile Ile
    130                 135                 140
Gly Gly Phe Ser Gln Gly Ala Met Met Thr Thr His Leu Met Leu Ser
145                 150                 155                 160
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Ser Arg Leu Pro Tyr Arg Gly Ala Leu Ile Cys Ser Gly Ala Ala Val
165 170 175
Pro Asn Gln Ser Trp Glu Glu Asn Ala Ser Leu Cys Gly Lys Thr Pro
180 185 190
Tyr Ile Gln Ser His Gly Tyr Asp Asp Pro Ile Leu Pro Tyr Phe Leu
195 200 205
Gly Glu Arg Leu Tyr Lys Val Leu Thr Ala Ser Leu Lys Gly Glu Met
210 215 220
Val Ser Phe His Gly Gly His Glu Ile Pro Val Val Met Met Gln Lys
225 230 235 240
Ile Gln Glu Ser Ile Ala Leu Trp Ser Gln Ser Thr
245 250

<210>313
<211>85
<212>PRT
<213>Chlamydia trachomatis
<400>313
Ser Arg Thr Ala Arg Cys Ile Gln Arg Gly Ala Leu Tyr Ala Leu Val
1 5 10 15
Leu Glu Lys Met Gln Arg Phe Pro Lys Glu Phe Leu Lys Asp Gly Val
20 25 30
Ala Lys Ser Val Val Ala Ile Gln Ala Gly Glu Ser Leu Asp Thr Gly
35 40 45
Glu Leu Ala Trp Glu Glu Met Pro Ser Ile Thr Ala Cys Leu Gly Arg
50 55 60
Glu Gly Ile Asp Ala Gln Ala Tyr Ser Phe Leu Ser Val Ser Pro Leu
65 70 75 80
Asp Ala Arg Ile Glu
85

<210>314
<211>324
<212>PRT
<213>Chlamydia trachomatis
<400>314
Asn Ser Leu Lys Lys Ile Trp Gly Asn Glu Ile Lys Glu Val Lys Leu
1 5 10 15
Leu Lys Met Val Ser Phe Asp Leu Asn Asp Pro Val Arg Asn Thr Asp
20 25 30
Asn His Tyr Arg Asn Ile Asn Arg Met Leu Asn Ser Ala Thr Cys Ala
35 40 45
Ala Gly Gly Ile Gly Leu Leu Thr Pro Val Val Cys Ser Pro Met Gly
50 55 60
Ala Phe Cys Phe Ala Gln Gly Pro Ser Ser Ala Glu Asp Leu Gly His
65 70 75 80
Arg Ile Gln His Phe Val Ala Cys Leu Gly Pro Ala Ala Gly Phe Tyr
85 90 95
Ser Leu Ser Asn Glu Arg Ile Met Phe Glu Glu Ala Ala Val Pro Ser
100 105 110
Val Leu Glu Ala Val Glu Ala Thr Phe Trp Ile Ser Ala Phe Ala Arg
115 120 125
Leu Arg Gly Asn Lys Pro Ser Thr Cys Asp Thr Val Met Met Ser Cys
130 135 140
Leu Ile Gly Cys Ile Ser Leu Val Cys Gly Ala Met Phe Val Ala Ile
145 150 155 160
Val Ser Cys Ala Val Lys Ile Ser Arg Ile Val Arg Thr Met Thr Gln
165 170 175
Ala His Ala Leu Arg Glu Thr Ile Gln Arg Gln Leu Ala Ala Arg Ala
180 185 190
Thr Asp Met Arg Ser Ala Tyr Ser Lys Leu Lys Gly Ile Ile Ala Ile
195 200 205
Arg Ala Leu Asn Glu Val Glu Arg Gly His Arg Lys Leu Arg Asn Lys

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    210                 215                 220
Met Ile Thr Ala Phe Val Ala Asn Ala Leu Ile Thr Leu Ala Phe Cys
225                 230                 235                 240
Ala Leu Leu Ala Ser Ala Val Ile Ala Ala Phe Phe Leu Gly Ala Ala
                245                 250                 255
Ser Ala Gly Leu Ala Ser Val Phe Phe Gly Cys Leu Trp Gly Gly Ile
            260                 265                 270
Gly Ala Leu Ala Val Gly Val Leu Val Gly Ile Val Ser Gly Ile Cys
        275                 280                 285
Gln Arg Asn Tyr Lys Val Glu Leu Arg Gly Val Phe Ser Glu Val Leu
    290                 295                 300
Phe Met Arg Leu Phe Leu Arg Lys Cys Ser Asp Ser Leu Lys Asn Ser
305                 310                 315                 320
Leu Lys Met Val

<210>315
<211>92
<212>PRT
<213>Chlamydia trachomatis
<400>315
Leu Arg Trp Gln Ile Pro Glu Thr Met Pro Thr Lys Thr Pro Thr Ala
  1                 5                  10                  15
Lys Ala Pro Met Pro Pro His Lys His Pro Lys Lys Thr Leu Ala Ser
            20                  25                  30
Pro Ala Leu Ala Ala Pro Lys Lys Asn Ala Ala Ile Thr Ala Glu Ala
        35                  40                  45
Asn Lys Ala Gln Lys Ala Ser Val Met Ser Ala Phe Ala Thr Lys Ala
    50                  55                  60
Val Ile Ile Leu Phe Leu Asn Phe Arg Trp Pro Leu Ser Thr Ser Leu
65                  70                  75                  80
Arg Ala Leu Met Ala Ile Met Pro Leu Ser Leu Glu
                85                  90
<210>316
<211>157
<212>PRT
<213>Chlamydia trachomatis
<400>316
Leu Gly Glu Thr Glu Ala Ser Ile Glu Ser Lys Glu Ile Cys Gly Gly
  1                 5                  10                  15
Arg Arg Ala Val Met Ala Cys Cys Ala Cys Val Tyr Gly Tyr Asp Glu
            20                  25                  30
Ile Cys Cys Arg Glu Glu Thr Ala Glu Lys Val Val Ala Val Ala Val
        35                  40                  45
Asp Cys Val Leu Phe His Ile Ala Ala Ala Ile Thr Thr Ala Val Ser
    50                  55                  60
Ala Val Trp Leu Leu Ile Arg Leu Ile Ala Cys Ala Ile His Asn Tyr
65                  70                  75                  80
Cys Ser Pro Ala Ser Glu Arg Val Asn Phe Phe Pro Ile Thr Glu Ser
                85                  90                  95
Arg Ala Glu Trp Phe Ser Leu Ile Pro Val Leu Gly Pro Met Val Val
            100                 105                 110
Ala Ala Val Val Tyr Phe Lys Ala Arg Glu Glu Gly Tyr Gly His Leu
        115                 120                 125
Asp Ser Leu Val Cys Ala Met Gln Ser Pro Trp Met Leu Leu Asp Ser
    130                 135                 140
Leu Arg Leu Asn Arg Ser Glu Leu Lys Ile Val Met Val
145                 150                 155
<210>317
<211>267
<212>PRT
<213>Chlamydia trachomatis
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<400>317
Met Ser Arg Lys Pro Ala Ser Asn Ser Ser Arg Asn Thr Lys Arg Ser
1 5 10 15
Ser Asp Thr Ser Trp Glu Val Ile Ala Gln Asp Tyr Asn Lys Ala Val
20 25 30
Asp Arg Asp Gly His Phe Tyr His Lys Glu Val Ile Leu Pro Asn Leu
35 40 45
Leu Ser Lys Leu His Ile Ser Arg Ser Ser Ser Leu Val Asp Val Gly
50 55 60
Cys Gly Gln Gly Ile Leu Glu Lys His Leu Pro Lys Tyr Leu Pro Tyr
65 70 75 80
Leu Gly Ile Asp Leu Ser Pro Ser Leu Leu Arg Phe Ala Lys Lys Ser
85 90 95
Ala Ser Ser Lys Ser Arg Arg Phe Leu His His Asp Met Thr Gln Pro
100 105 110
Val Pro Ala Asp His His Glu Gln Phe Ser His Ala Thr Ala Ile Leu
115 120 125
Ser Xaa Gln Xaa Met Glu Ser Pro Glu Gln Ala Ile Ala His Thr Ala
130 135 140
Asn Leu Leu Ala Pro Gln Gly Arg Leu Phe Ile Val Leu Asn His Pro
145 150 155 160
Cys Phe Arg Ile Pro Arg Leu Ser Ser Trp Leu Tyr Asp Glu Pro Lys
165 170 175
Lys Leu Leu Ser Arg Lys Ile Asp Arg Tyr Leu Ser Pro Val Ala Val
180 185 190
Pro Ile Val Val His Pro Gly Glu Lys His Ser Glu Thr Thr Tyr Ser
195 200 205
Phe His Phe Pro Leu Ser Tyr Trp Val Gln Ala Leu Ser Asn His Asn
210 215 220
Leu Leu Ile Asp Ser Met Glu Glu Trp Ile Ser Pro Lys Lys Ser Ser
225 230 235 240
Gly Lys Arg Ala Arg Ala Glu Asn Leu Ser Arg Lys Glu Phe Pro Leu
245 250 255
Phe Leu Phe Ile Ser Ala Leu Lys Ile Ser Lys
260 265

<210>318
<211>318
<212>PRT
<213>Chlamydia trachomatis
<400>318
Phe Leu Cys Leu Leu Leu Gly Arg Tyr Ser Asp Ala Thr Ile Phe Arg
1 5 10 15
Ser Gly Leu Asn Lys Ile Phe Cys Ser Gly Ile Thr Gln Ala Ser Leu
20 25 30
Lys Arg Leu Ile Ser Tyr Leu Val Ile Thr Leu Val Ser Pro Met Ile
35 40 45
Phe Ile Ile Val Cys Gly Ser Trp Ile Tyr Ile Thr Gln Ile Leu Pro
50 55 60
Ile Asn Tyr Pro Gln Leu Phe Ser Phe Ser His Ser Met Ala Phe Ile
65 70 75 80
Tyr Ile Val Ser Arg Leu Leu Pro Tyr Ala Leu Leu Tyr Gly Ile Leu
85 90 95
Phe Cys Cys Tyr Ala Phe Leu Ser Arg Val Pro Thr Lys Lys Ser Ala
100 105 110
Ala Phe Phe Ala Ala Thr Ile Ala Gly Ser Ala Trp Ile Leu Ser Gln
115 120 125
Lys Ile Phe Phe Cys Leu Gln Leu His Leu Phe Asn Tyr Ser Phe Thr
130 135 140
Tyr Gly Ala Leu Val Ala Leu Pro Ser Phe Leu Leu Leu Leu Tyr Leu
145 150 155 160
Tyr Ala Ile Ile Tyr Leu Phe Gly Gly Ala Leu Thr Phe Leu Phe Gln

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                165                 170                 175
Asn Lys Gly Phe Ser Ile Leu Ile Pro Lys Glu Glu Ile Phe Pro Ser
            180                 185                 190
Ser Tyr Phe Lys Phe Ile Leu Cys Val Tyr Val Leu Ser Leu Ile Thr
        195                 200                 205
Glu His Phe Asp Asn Ala Leu Pro Pro Pro Ser Ala Asn Tyr Leu Ala
    210                 215                 220
Asn Lys Ala Lys Ala Ser Ile Gly Glu Thr Ser Gln Cys Leu Asp Ile
225                 230                 235                 240
Leu Glu Arg Glu Gly Met Ile Leu Lys Tyr Lys Glu Gly Tyr Lys Pro
                245                 250                 255
Ser His Asn Ile Ala Asn Leu His Ile Asn Thr Ile Phe Asp Gln Leu
            260                 265                 270
Thr Lys Ser Pro Ala Phe Ser Lys Ile Cys Ser Pro Ser Leu Ile Pro
        275                 280                 285
Ile Gln Asp Ala Leu Thr His Ile Leu Thr Glu Ile Lys Lys Asn Ser
    290                 295                 300
His Asn Leu Ser Leu Ser Glu Ile Ala Lys Lys Val Asn Ser
305                 310                 315
<210>319
<211>151
<212>PRT
<213>Chlamydia trachomatis
<400>319
Lys Ser Glu Phe Met Lys Arg Ser Pro Trp Tyr Lys Ile Phe Gly Tyr
  1               5                  10                  15
Tyr Leu Leu Val Gly Val Pro Leu Ala Leu Leu Ala Leu Leu Pro Lys
             20                  25                  30
Phe Leu Ser Ser Glu Ser Gly Lys Tyr Leu Phe Leu Ser Val Leu Asn
         35                  40                  45
Lys Glu Thr Gly Leu Gln Cys Glu Ile Glu Gln Leu His Leu Ser Trp
     50                  55                  60
Phe Gly Ser Gln Thr Ala Lys Lys Ile Arg Ile Arg Gly Ile Asp Ser
 65                  70                  75                  80
Glu Ser Glu Ile Phe Ala Ala Glu Lys Ile Ile Val Lys Gly Ser Leu
                85                  90                  95
Pro Arg Leu Leu Leu Tyr Arg Phe Pro Lys Ala Leu Thr Leu Thr Gly
            100                 105                 110
Trp Ser Leu Gln Ile Asp Glu Ser Leu Ser Met Asn Ser Pro Ser Leu
        115                 120                 125
Tyr His Leu Asp Pro Gly Val Leu Leu Ser Lys Ile Glu Arg Arg Leu
    130                 135                 140
Ser Leu Gln Asn Leu Asp Pro
145                 150
<210>320
<211>154
<212>PRT
<213>Chlamydia trachomatis
<400>320
Asn Arg Ala Gln Val Ile Thr Ser Glu Leu Gly Ser Ile Thr Met Lys
  1               5                  10                  15
Thr Ile Asn Gly Ser Thr Leu Ser Val Ser Gly Phe Tyr Val Lys Lys
             20                  25                  30
Thr Ala Glu Gln Leu Leu Ile Arg Ala Leu Thr Lys Glu Asn Asp Val
         35                  40                  45
Pro Gly Ser Val Ala Val Glu Gly Ala Leu Ser Pro Asn Phe Val Leu
     50                  55                  60
Asn Val Glu Leu Ser Ser Val Pro Ala Ser Leu Phe Lys Leu Phe Ile
 65                  70                  75                  80
Ala Ser Pro Ser Leu Asp Arg Ile Leu Ser Thr Glu Asn Leu Ile Asn
                85                  90                  95
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Leu Thr Ala Lys Ala His Gln Glu Lys Asp Ser Thr Leu Ile Thr Leu
100 105 110
Thr Ala Glu Gly Asn Gln Ile Ser Ala Lys Leu Arg Gly Tyr Val Arg
115 120 125
Asp Arg Val Phe Leu Ile Thr Gln Gly Gly Ala Ser Phe Cys Ala Leu
130 135 140
Thr Ala Tyr Asn Asn Phe Ser Asn Ser Leu
145 150

<210>321
<211>280
<212>PRT
<213>Chlamydia trachomatis
<400>321
Ser His Lys Ala Glu Pro Pro Ser Val Leu Leu Gln Pro Thr Ile Thr
1 5 10 15
Ser Arg Ile Leu Ser Glu Leu Ser Pro Leu Asp Thr Pro Ile Arg Ser
20 25 30
Gln Glu Ala Tyr Leu Phe Ile Ser Glu Ala Lys Leu Pro Leu Ser Ile
35 40 45
Ser Lys Trp Ser Ala Ser Asp Phe Ser Leu Gln Ala Asn Leu Pro Gln
50 55 60
Ile Ser Val Asp Thr Leu Asp Pro Asn Leu Ser Ile Arg Thr Glu Asn
65 70 75 80
Thr Lys Ile Ser Ile Arg Lys Ser Asp His Leu Thr Val Met Arg Ser
85 90 95
Ser Ser Ser Ala Ile Leu Gly Gly Ala Ser Pro Ser Tyr Ile His Ser
100 105 110
Thr Leu Ser Met Asp Asn His Lys His Val Ala Glu Phe His Ile Gln
115 120 125
His Ser Leu Leu Pro His Thr Tyr Leu Arg Ala Leu Leu Pro Lys Pro
130 135 140
Ile Glu Ile Asn Thr Pro Leu Glu Val Pro Tyr Tyr Thr Leu Asp Ile
145 150 155 160
Lys Gly Lys Tyr Arg Asn Thr Gln Leu Ser Cys Glu Ala Leu Leu Asp
165 170 175
Asn Pro Leu Leu Arg Leu Ser Cys Asn Leu Ser Gly Pro Leu Tyr Ala
180 185 190
Leu Gln Phe Ser Gly Glu Gly Ala Tyr Thr Leu Ser Glu Arg Trp Lys
195 200 205
Glu Arg Leu Ala Pro His Phe Leu Gln Ile Gln Ala Ile Phe Ser Gly
210 215 220
Lys Met His Phe Ser Gln Lys His Val Phe Phe Pro Lys Leu Ser Gly
225 230 235 240
Lys Leu Ile Ala Gly Asp Asn Glu Ile Phe Ile His Gly Lys Cys Gly
245 250 255
Arg Ala Ser Glu Glu Met Lys Pro Ser Asn Ser Ser Leu Leu Val Tyr
260 265 270
Gly Asn Thr Leu Leu Ser Ser Phe
275 280

<210>322
<211>590
<212>PRT
<213>Chlamydia trachomatis
<400>322
Ile Tyr Tyr Pro Pro Lys Phe Ala Pro Leu Gln Met Thr Xaa Ser Ser
1 5 10 15
Phe Ser Leu His Ser Asp Gly Gly Lys Ala Leu Leu Lys Gly Asn Val
20 25 30
Lys Leu Phe Ile Thr Asp Pro Glu Ser Pro His Xaa Glu Xaa Thr Lys
35 40 45
Ile Leu Ile Pro Asp Ile Val Ile Xaa Ser Leu Asp Pro Ser Ala Pro

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     50                  55                  60
Trp Thr Ala Asp Asn Xaa Ser Val Gln Ala Ser Gly Glu Leu Leu Gln
 65                  70                  75                  80
Leu Pro Val Asp Arg Leu Ile Arg Leu Gln His Lys Asp Leu Ser Leu
                 85                  90                  95
Ser Arg Tyr Ile Gly Glu Thr Ser Glu Ala Ser Phe Gln Leu Leu Tyr
            100                 105                 110
Ser Pro Asp Lys Glu Glu Thr Val Asp Ile Ser Ser Arg Phe Lys Thr
        115                 120                 125
Asp Ala Leu Thr Gly Asp Phe Arg Phe Val Met Asn Lys Glu Leu Ser
    130                 135                 140
Leu Thr Glu Lys Ala His Gly Ser Leu Gln Trp Glu Ile Ser Pro Glu
145                 150                 155                 160
Arg Tyr Ser Ser Phe Phe Glu Lys Ala Ser Cys Pro Pro Ser Cys Ile
                165                 170                 175
Leu His Arg Pro Thr Thr Phe Arg Leu Asp Leu Ser Lys Ile Ser Cys
            180                 185                 190
Leu Asp Lys Lys Thr Gly Tyr Ser Cys Leu Ser Leu Leu Ser Gln Gly
        195                 200                 205
Gly Ile Glu Gly Lys Leu Ser Ser Thr Pro Leu Val Phe Tyr Asp His
    210                 215                 220
Leu Ser Lys Glu Asn Phe Ile Val Asn Asn Ile Gly Gly Ser Val Tyr
225                 230                 235                 240
Ala Gln Asn Val Asn Asp Leu Ile Gln Tyr Gln Leu Asn Gly Asn Cys
                245                 250                 255
Leu Ala Pro Asn Gln Asp Asn Lys Thr Pro Val Ser Phe Ile Ile Glu
            260                 265                 270
Gly Glu Ala Arg Asn Ile Phe Ser Asp Glu Thr Arg Ala Cys Ser Gln
        275                 280                 285
Thr Ala Thr Trp Val Asn Ile Pro Thr Ser Phe Ile Thr Gly Ile Phe
    290                 295                 300
Pro Ile Ser Pro Gly Val Arg Ser Lys Leu Thr Ser Leu Ala Gly Pro
305                 310                 315                 320
Lys Ile His Val Ser Ile His Asn Asp Phe Ser Arg Gly Glu Gly Pro
                325                 330                 335
Val Thr Ile Lys Val Asp Ser Glu Asn Leu Thr Ala Tyr Phe Pro Leu
            340                 345                 350
Val Leu Thr Glu Gln Ala Ile Leu Leu Glu Asp Asp Leu Thr Ala Ser
        355                 360                 365
Leu His Ile Asn Glu Glu Ile Asn Lys Ala Phe Leu Arg Glu Phe Asn
    370                 375                 380
Pro Leu Ile Ala Glu Gly Gly Ala Tyr Ser Lys His Pro Val Ser Leu
385                 390                 395                 400
Arg Val Asn Lys Gln Asn Phe Tyr Leu Pro Ile Lys Pro Tyr Ser Phe
                405                 410                 415
Glu Asn Phe Arg Ile Gln Ser Ala Ser Leu Asp Phe Gly Lys Ile Glu
            420                 425                 430
Ile Ala Asn Thr Gly Thr Met Gln Asp Leu Phe Gln Phe Leu Asp Val
        435                 440                 445
Glu Ala Glu Gln Gln Arg Val Glu Ser Trp Phe Thr Pro Ile Phe Phe
    450                 455                 460
Ser Val Gln Lys Gly Gln Ile Ile Cys Lys Arg Phe Asp Ala Leu Ile
465                 470                 475                 480
Asp Gly Arg Ile Arg Leu Ala Leu Trp Gly Lys Thr Asp Ile Val Arg
                485                 490                 495
Glu Arg Leu Ala Met Thr Leu Gly Ile Asp Pro Glu Leu Ile Lys Lys
            500                 505                 510
Leu Phe Arg Asn Thr Met Leu Lys Thr Lys Asn Phe Phe Leu Ile Lys
        515                 520                 525
Ile Arg Gly Pro Ile Ser Ser Pro Glu Ile Asp Trp Ser Ser Ala Tyr
    530                 535                 540
```

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Ala Arg Ile Ala Leu Leu Lys Ser Tyr Thr Ile Ala Gly Pro Leu Asn
545                 550                 555                 560
Ser Leu Ala Asp Lys Leu Phe Ser Ser Leu Gly Glu Pro Thr Pro Thr
                565                 570                 575
Gln Thr Val Ser Pro Leu Pro Trp Glu Val Ser Glu Thr Glu
            580                 585                 590
<210>323
<211>215
<212>PRT
<213>Chlamydia trachomatis
<400>323
Met Thr Val Glu Val Lys Asp Leu Thr Val Ala Val Lys Gly Lys Glu
  1               5                  10                  15
Ile Leu Ser Asn Val Ser Phe Ser Leu Val Pro Gly Arg Ile Thr Leu
            20                  25                  30
Phe Ile Gly Arg Ser Gly Ser Gly Lys Thr Thr Ile Leu Arg Ser Leu
        35                  40                  45
Val Gly Leu Thr Pro Ile Ser Ser Gly Ser Ile Ser Val Val Gly Asp
    50                  55                  60
Pro Pro Gly Phe Val Phe Gln Gln Pro Glu Leu Phe Pro His Met Thr
65                  70                  75                  80
Val Leu Asp Asn Cys Ala His Pro Gln Met Ile Val Lys Lys Arg Gly
                85                  90                  95
Glu Arg Glu Ala Lys Asp Lys Ala Leu Asp Leu Leu Gly Met Leu Glu
            100                 105                 110
Leu Arg Glu Tyr Ala Ser Ser Tyr Pro His Gln Leu Ser Gly Gly Gln
        115                 120                 125
Arg Gln Arg Val Ala Ile Ala Arg Ala Leu Ala Leu Asp Met Arg Ala
    130                 135                 140
Ile Leu Phe Asp Glu Pro Thr Ser Ala Leu Asp Pro Phe Ser Ala Ser
145                 150                 155                 160
Lys Phe Leu Gln Ile Val Leu Ser Leu Lys Glu Gln Gly Met Thr Ile
                165                 170                 175
Ala Ile Ser Thr His Asp Met Leu Phe Ile Asn Gln Cys Leu Asp Arg
            180                 185                 190
Val Tyr Leu Val Asp Lys Gly Gln Ile Ile Asp Ala Tyr Asp Ser Leu
        195                 200                 205
His Asp Asp Pro Gln Gly Lys
    210                 215
<210>324
<211>216
<212>PRT
<213>Chlamydia trachomatis
<400>324
Gly Ile Val Glu His Tyr Leu Leu Thr Ala Lys Leu Leu Leu Arg Gly
  1               5                  10                  15
Cys Gly Tyr Thr Leu Leu Ile Thr Ala Ile Ser Leu Val Cys Gly Phe
            20                  25                  30
Val Leu Gly Trp Gly Ile Gly Thr Val Asn Ser Arg Tyr Phe Pro Cys
        35                  40                  45
Arg Ile Ser Lys Phe Leu Gly Asn Phe Tyr Val Val Ala Val Arg Gly
    50                  55                  60
Thr Pro Leu Phe Ile Gln Ile Leu Ile Val Tyr Phe Gly Leu Pro Ser
65                  70                  75                  80
Leu Ile Lys Val Asn Leu Ser Pro Leu Val Ala Gly Leu Ile Ala Leu
                85                  90                  95
Thr Leu Asn Ser Ala Ala Tyr Leu Ala Glu Asn Val Arg Ala Gly Ile
            100                 105                 110
Asn Ala Leu Pro Val Gln Gln Trp Glu Ala Ala Lys Val Leu Gly Tyr
        115                 120                 125
Thr Gly Pro Gln Ile Phe Leu His Ile Leu Tyr Pro Gln Val Phe Lys
```

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    130                 135                 140
Asn Ile Leu Pro Ser Leu Ala Asn Glu Phe Val Ser Leu Ile Lys Glu
145                 150                 155                 160
Ser Ser Ile Leu Met Val Val Gly Val Pro Glu Leu Thr Lys Val Thr
                165                 170                 175
Lys Asp Ile Val Ala Arg Glu Leu Asn Pro Met Glu Met Tyr Leu Ile
            180                 185                 190
Cys Ala Gly Leu Tyr Leu Ile Met Thr Ser Ala Phe Ser Tyr Phe Ala
        195                 200                 205
Arg Leu Ser Glu Lys Glu Ser Ala
    210                 215
<210>325
<211>245
<212>PRT
<213>Chlamydia trachomatis
<400>325
Met Asp Arg Ser Pro Leu Phe Leu Ile Ile Met Gly Ala Pro Gly Ser
  1               5                  10                  15
Gly Lys Gly Thr Gln Ser Lys Leu Leu Ala Ser Gln Leu Ser Leu Leu
             20                  25                  30
His Ile Ser Ser Gly Asp Leu Leu Arg Gly Ala Val Ser Lys Asp Thr
         35                  40                  45
Pro Leu Ser Gln Glu Ile Lys Ser Tyr Leu Asp Gln Gly Lys Leu Leu
     50                  55                  60
Pro Asp Thr Leu Val Trp Lys Leu Val His Glu Lys Leu Asp Glu Phe
 65                  70                  75                  80
Gln Gln Asp Thr Leu Leu Arg Arg Leu Ser Phe Leu Ser Arg Ser Glu
                85                  90                  95
Asn Ser Ala Ile Leu Asp Gly Phe Pro Arg Thr Val Thr Gln Ala Lys
            100                 105                 110
Leu Leu His Glu Phe Leu Ser Ser Tyr Phe Pro Asn Tyr Lys Val Ile
        115                 120                 125
Leu Leu Asp Ile Ser Asp Glu Glu Val Leu Asn Arg Leu Thr Ser Arg
    130                 135                 140
Tyr Ile Cys Pro Ala Cys Gln Gly Ile Tyr Asn Glu Gln Gln Gly Phe
145                 150                 155                 160
Ser Ser Cys Pro Lys Cys Ser Val Glu Leu Ile Arg Arg Ser Asp Asp
                165                 170                 175
Thr Leu Glu Val Ile Leu Asp Arg Ile Gln Thr Tyr Lys Gln Glu Thr
            180                 185                 190
Gln Pro Val Leu Asp Tyr Tyr Thr Glu Lys Gln Lys Leu Ile Thr Ile
        195                 200                 205
Asp Ala Asn Ala Pro Thr Gln Gln Val Phe Gln Ser Ile Leu Asp Ser
    210                 215                 220
Leu Ser Ala Ser Leu Val Tyr Gln Glu Arg Asp Cys Cys Asn Cys Asp
225                 230                 235                 240
Cys Asp Asp Glu Asp
                245
<210>326
<211>290
<212>PRT
<213>Chlamydia trachomatis
<400>326
Cys Leu Tyr Arg Gly Ser Pro Met Pro His Gln Val Leu Leu Ser Pro
  1               5                  10                  15
Val Cys Asp Leu Leu Ser Asn Ala Glu Gly Ile Glu Thr Gln Val Leu
             20                  25                  30
Phe Gly Glu Arg Ile Cys Asn His Asn His Arg His Tyr Ala Tyr Ser
         35                  40                  45
Gln Leu Val Phe Ser Ser Ile Trp Lys Pro Tyr Pro Gly Asp Ser Leu
     50                  55                  60
```

```
Gln Asn Ile Pro Leu Phe Ser Ser Gln Leu Gln Pro Pro Asn Ala Val
 65                  70                  75                  80
Val Cys Ser Gln Glu Ala Phe Leu Asp Pro Trp His Ile Pro Leu Pro
                85                  90                  95
Phe Ala Ala Pro Leu His Ile Asp Asn Gln Asn Gln Val Ser Leu Ser
            100                 105                 110
Pro Ala Ser Ile Ala Leu Leu Asn Ser Asn Ser Arg Ser Asn Tyr Ala
        115                 120                 125
Lys Ala Phe Cys Ser Thr Lys Glu Ile Arg Phe Leu Asn Ser Ser Phe
    130                 135                 140
Ser Leu Arg Asp Leu Val Ser Phe Ala Glu Gln Leu Ile Asp Thr Pro
145                 150                 155                 160
Tyr Val Trp Gly Gly Arg Cys Ile His Lys Gln Leu Pro Arg Asn Gly
                165                 170                 175
Val Asp Cys Ser Gly Tyr Ile Gln Leu Leu Tyr Gln Val Thr Gly Arg
            180                 185                 190
Asn Ile Pro Arg Asn Ala Arg Asp Gln Tyr Arg Asp Cys Ser Pro Val
        195                 200                 205
Lys Asp Phe Ser Ser Leu Pro Ile Gly Gly Leu Ile Phe Leu Lys Lys
    210                 215                 220
Ala Ser Thr Gly Gln Ile Asn His Val Met Met Lys Ile Ser Glu His
225                 230                 235                 240
Glu Phe Ile His Ala Ala Glu Lys Ile Gly Lys Val Glu Lys Val Ile
                245                 250                 255
Leu Gly Asn Arg Ala Phe Phe Lys Gly Asn Leu Phe Cys Ser Leu Gly
            260                 265                 270
Glu Pro Pro Ile Glu Ala Val Phe Gly Val Pro Lys Asn Arg Lys Ala
        275                 280                 285
Phe Phe
    290
<210>327
<211>134
<212>PRT
<213>Chlamydia trachomatis
<400>327
Phe Val Thr Lys Asn Met Ile Gln Glu Ser Val Ala Thr Gly Arg Arg
  1                 5                  10                  15
Lys Gln Ala Val Ser Ser Val Arg Leu Arg Ser Gly Asn Gly Lys Ile
            20                  25                  30
Asp Val Asn Gly Lys Thr Leu Glu Gln Tyr Phe Pro Leu Glu Val Gln
        35                  40                  45
Arg Ala Thr Ile Leu Ala Pro Leu Arg Met Leu Gly Asp Val Asn Ser
    50                  55                  60
Phe Asp Leu Ile Ile Arg Val Ser Gly Gly Gly Val Gln Gly Gln Val
 65                  70                  75                  80
Ile Ala Thr Arg Leu Gly Leu Ala Arg Ala Val Leu Gln Glu Lys Glu
                85                  90                  95
Asp Ile Lys Gln Glu Leu Lys Ala Gln Gly Phe Leu Thr Arg Asp Pro
            100                 105                 110
Arg Lys Lys Glu Arg Lys Lys Tyr Gly Arg Lys Lys Ala Arg Lys Ser
        115                 120                 125
Phe Gln Phe Ser Lys Arg
    130
<210>328
<211>111
<212>PRT
<213>Chlamydia trachomatis
<400>328
Met Glu Lys Arg Lys Asp Thr Lys Thr Thr Leu Ala Lys Ala Ser Asp
  1                 5                  10                  15
Asp Arg Asn Lys Ala Trp Tyr Val Val Asn Ala Glu Gly Lys Thr Leu
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09/762,742 06/06/2001

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                20                  25                  30
Gly Arg Leu Ser Ser Glu Val Ala Lys Ile Leu Arg Gly Lys His Lys
            35                  40                  45
Val Thr Phe Thr Pro His Val Ala Met Gly Asp Gly Val Ile Val Ile
        50                  55                  60
Asn Ala Glu Lys Val Arg Leu Thr Gly Ala Lys Arg Ala Gln Lys Val
65                  70                  75                  80
Tyr His Tyr Tyr Thr Gly Phe Ile Ser Gly Met Arg Glu Val Pro Phe
                85                  90                  95
Glu Asn Met Ile Ala Arg Asn Cys Leu Cys Tyr Arg Ala Cys Cys
            100                 105                 110
<210>329
<211>124
<212>PRT
<213>Chlamydia trachomatis
<400>329
Phe Asn Ala Glu Ser Met Gln Arg Ile Gln Val Ile Thr Phe Thr Pro
  1                 5                  10                  15
Ser Pro Gly Arg Leu Asp Tyr Tyr Leu Pro Pro Ala Gly Pro Ala Val
            20                  25                  30
Arg Val Asp Gly Ala Cys Tyr Ser Gly Tyr Ala Ile Pro Pro Tyr Tyr
            35                  40                  45
Asp Ser Met Ile Ala Lys Val Ile Thr Lys Gly Lys Asn Arg Glu Glu
        50                  55                  60
Ala Ile Ala Ile Met Lys Arg Ala Leu Lys Glu Phe His Ile Gly Gly
65                  70                  75                  80
Val His Ser Thr Ile Pro Phe His Gln Phe Met Leu Asp Asn Pro Lys
                85                  90                  95
Phe Leu Leu Ser Asp Tyr Asp Ile Asn Tyr Val Asp Gln Leu Leu Ala
            100                 105                 110
Ser Gly Ser Thr Phe Leu Asn Leu Ala Asp Gly Ser
        115                 120
<210>330
<211>353
<212>PRT
<213>Chlamydia trachomatis
<400>330
Leu Met Lys Glu Val Leu Ile Ala Asn Arg Gly Glu Ile Ala Val Arg
  1                 5                  10                  15
Ile Ile Arg Ala Cys His Asp Leu Gly Leu Ala Thr Val Ala Val Tyr
            20                  25                  30
Ser Met Ala Asp Gln Glu Ala Leu His Val Leu Leu Ala Asp Glu Ala
        35                  40                  45
Val Cys Ile Gly Glu Ala Gln Ala Ala Lys Ser Tyr Leu Lys Ile Ala
    50                  55                  60
Asn Ile Leu Ala Ala Cys Glu Ile Thr Gly Ala Asp Ala Val His Pro
65                  70                  75                  80
Gly Tyr Gly Phe Leu Ser Glu Asn Ala Asn Phe Ala Ser Ile Cys Glu
                85                  90                  95
Ser Cys Gly Leu Thr Phe Ile Gly Pro Ser Ala Glu Ser Ile Ala Thr
            100                 105                 110
Met Gly Asp Lys Val Ala Ala Lys Gln Leu Ala Lys Lys Ile Lys Cys
        115                 120                 125
Pro Val Ile Pro Gly Ser Glu Gly Val Val Lys Asp Glu Val Glu Gly
    130                 135                 140
Ile Arg Ile Ala Glu Lys Ile Gly Phe Pro Ile Val Ile Lys Ala Val
145                 150                 155                 160
Ala Gly Gly Gly Gly Arg Gly Ile Arg Ile Val Arg Glu Lys Asp Glu
                165                 170                 175
Phe Tyr Arg Ala Phe Thr Ala Ala Arg Ala Glu Ala Glu Ala Gly Phe
            180                 185                 190
```

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Asn Asn Pro Asp Val Tyr Ile Glu Lys Phe Ile Glu Asn Pro Arg His
        195                 200                 205
Leu Glu Val Gln Val Ile Gly Asp Lys His Gly Asn Tyr Val Tyr Leu
    210                 215                 220
Gly Glu Arg Asp Cys Thr Val Gln Arg Arg Arg Gln Lys Leu Ile Glu
225                 230                 235                 240
Glu Thr Pro Ser Pro Ile Leu Thr Pro Glu Met Gln Ala Lys Val Gly
                245                 250                 255
Lys Val Ala Val Asp Leu Ala Arg Ser Ala Gly Tyr Phe Ser Val Gly
            260                 265                 270
Thr Val Glu Phe Leu Leu Asp Lys Glu Lys Arg Phe Tyr Phe Met Glu
        275                 280                 285
Met Asn Thr Arg Ile Gln Val Glu His Thr Ile Thr Glu Glu Val Thr
    290                 295                 300
Gly Ile Asp Leu Leu Lys Ala Gln Ile Ser Val Ala Lys Gly Glu Lys
305                 310                 315                 320
Leu Pro Trp Lys Gln Lys Asn Ile Glu Phe Lys Gly His Val Ile Gln
                325                 330                 335
Cys Arg Ile Asn Ala Glu Asp Pro Ser Asn Asn Phe Tyr Ser Phe Pro
            340                 345                 350
Trp
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09/10/2004 14:10:10

<210>331
<211>164
<212>PRT
<213>Chlamydia trachomatis
<400>331

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Met Asp Leu Lys Gln Ile Glu Lys Leu Met Ile Ala Met Gly Arg Asn
  1               5                  10                  15
Lys Met Lys Arg Ile Val Ile Lys Arg Glu Gly Leu Glu Leu Glu Leu
            20                  25                  30
Glu Arg Asp Thr Val Pro Ser Ile Gln Glu Pro Val Phe Tyr Asp Asn
        35                  40                  45
Arg Leu Phe Ala Gly Phe Ser Gln Glu Arg Pro Ile Pro Thr Asp Gln
    50                  55                  60
Asn Leu Gly Asn Pro Ile Val Lys Glu Ser Ile Glu Lys Lys Glu Ser
65                  70                  75                  80
Glu Ala Pro Ala Gln Gly Asp Phe Ile Val Ser Pro Leu Val Gly Thr
                85                  90                  95
Phe Tyr Gly Ser Pro Ser Pro Glu Ala Pro Ala Phe Ile Lys Pro Gly
            100                 105                 110
Asp Thr Val Ser Glu Asp Thr Val Val Cys Ile Val Glu Ala Met Lys
        115                 120                 125
Val Met Asn Glu Val Lys Ala Gly Met Ser Gly Arg Val Glu Glu Ile
    130                 135                 140
Leu Ile Thr Asn Gly Asp Pro Val Gln Phe Gly Ser Lys Leu Phe Arg
145                 150                 155                 160
Ile Val Lys Ala
```

<210>332
<211>185
<212>PRT
<213>Chlamydia trachomatis
<400>332

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Met Val Leu Ser Ser Gln Leu Ser Val Gly Met Phe Ile Ser Thr Lys
  1               5                  10                  15
Asp Gly Leu Tyr Lys Val Val Ser Val Ser Lys Val Ser Gly Asn Lys
            20                  25                  30
Gly Asp Thr Phe Ile Lys Val Ser Leu Gln Ala Ala Gly Ser Asp Val
        35                  40                  45
Ile Val Glu Arg Asn Phe Lys Ala Gly Gln Glu Val Lys Glu Ala Gln
```

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     50                  55                  60
Phe Glu Pro Arg Asn Leu Glu Tyr Leu Tyr Leu Glu Glu Asp Lys Tyr
 65                  70                  75                  80
Leu Phe Leu Asp Leu Gly Asn Tyr Asp Lys Ile Tyr Ile Pro Lys Glu
                 85                  90                  95
Ile Met Lys Asp Asn Ala Met Phe Leu Lys Ala Gly Val Thr Val Phe
            100                 105                 110
Ala Leu Val His Glu Gly Thr Val Phe Ser Met Glu Leu Pro His Phe
        115                 120                 125
Leu Glu Leu Met Val Ala Lys Thr Asp Phe Pro Gly Asp Ser Leu Ser
    130                 135                 140
Leu Ser Gly Gly Ala Lys Lys Ala Leu Leu Glu Thr Gly Val Glu Val
145                 150                 155                 160
Leu Val Pro Pro Phe Val Glu Ile Gly Asp Val Ile Lys Val Asp Thr
                165                 170                 175
Arg Thr Cys Glu Tyr Ile Gln Arg Val
            180                 185
<210>333
<211>228
<212>PRT
<213>Chlamydia trachomatis
<400>333
Met Lys Lys Gln Gly Val Leu Val Ala Pro Ser Ile Met Gly Ala Asp
  1                 5                  10                  15
Leu Ala Cys Ile Gly Arg Glu Ala Arg Asn Ile Glu Glu Ser Gly Ala
             20                  25                  30
Asp Leu Ile His Ile Asp Val Met Asp Gly His Phe Val Pro Asn Ile
         35                  40                  45
Thr Phe Gly Pro Gly Val Val Ala Ala Ile Asn Arg Ser Thr Glu Leu
     50                  55                  60
Phe Leu Glu Val His Ala Met Ile Tyr Thr Pro Phe Glu Phe Val Glu
 65                  70                  75                  80
Ala Phe Val Lys Ala Gly Ala Asp Arg Ile Ile Val His Phe Glu Ala
                 85                  90                  95
Ala Glu Asn Ile Lys Glu Ile Ile Ser Tyr Ile Gln Lys Cys Gly Val
            100                 105                 110
Gln Ala Gly Val Ala Phe Ser Pro Glu Thr Ser Ile Glu Phe Val Thr
        115                 120                 125
Ser Phe Ile Pro Leu Cys Asp Val Ile Leu Leu Met Ser Val His Pro
    130                 135                 140
Gly Phe Cys Gly Gln Lys Phe Ile Pro Asp Thr Ile Glu Arg Ile Gln
145                 150                 155                 160
Phe Val Lys Gln Ala Ile Gln Val Leu Gly Arg Glu Gly Ser Cys Leu
                165                 170                 175
Ile Glu Val Asp Gly Gly Ile Asp Lys Glu Ser Ala Arg Ala Cys Arg
            180                 185                 190
Glu Ala Gly Ala Asp Ile Leu Val Ala Ala Ser Tyr Phe Phe Glu Lys
        195                 200                 205
Asp Ser Ile Asn Met Lys Glu Lys Val Leu Leu Leu Gln Gly Glu Glu
    210                 215                 220
His Gly Ala Lys
225
<210>334
<211>81
<212>PRT
<213>Chlamydia trachomatis
<400>334
Ser Pro Arg Ile Trp Phe Gln Arg Thr Leu Asn Glu Lys Val Pro Met
  1                 5                  10                  15
Thr Thr Pro Thr Leu Ile Val Thr Pro Pro Ser Pro Pro Ala Pro Ser
             20                  25                  30
```

```
Tyr Ser Ala Asn Arg Val Pro Gln Pro Ser Leu Met Asp Lys Ile Lys
          35                  40                  45
Lys Ile Ala Ala Ile Ala Ser Leu Ile Leu Ile Gly Thr Ile Gly Phe
      50                  55                  60
Leu Ala Leu Leu Gly His Leu Val Gly Phe Leu Ile Ala Pro Gln Ile
 65                  70                  75                  80
His
```

<210>335
<211>195
<212>PRT
<213>Chlamydia trachomatis

```
<400>335
Ser Leu His Lys Phe Thr Asn Val Leu Leu Ala Leu Phe Ile Thr Ser
  1               5                  10                  15
Leu Ala Gly Asn Ala Leu Tyr Leu Gln Lys Thr Ala Asn Leu His Leu
             20                  25                  30
Tyr Gln Asp Leu Gln Arg Glu Val Gly Ser Leu Lys Glu Ile Asn Phe
          35                  40                  45
Met Leu Ser Val Leu Gln Lys Glu Phe Leu His Leu Ser Lys Glu Phe
      50                  55                  60
Ala Thr Thr Ser Lys Asp Leu Ser Ala Val Ser Gln Asp Phe Tyr Ser
 65                  70                  75                  80
Cys Leu Gln Gly Xaa Arg Asp Asn Tyr Lys Gly Phe Glu Ser Leu Leu
                 85                  90                  95
Asp Glu Tyr Lys Asn Ser Thr Glu Glu Met Arg Lys Leu Phe Ser Gln
            100                 105                 110
Glu Ile Ile Ala Asp Leu Lys Gly Ser Val Ala Ser Leu Arg Glu Glu
        115                 120                 125
Ile Arg Phe Leu Thr Pro Leu Ala Glu Glu Val Arg Arg Leu Ala His
    130                 135                 140
Asn Gln Glu Ser Leu Thr Ala Ala Ile Glu Glu Leu Lys Thr Ile Arg
145                 150                 155                 160
Asp Ser Leu Arg Asp Glu Ile Gly Gln Leu Ser Gln Leu Ser Lys Thr
                165                 170                 175
Leu Thr Ser Ala Lys Leu His Tyr Asn Glu Lys Arg Ala Gln Ile Cys
            180                 185                 190
Val Pro Arg
        195
```

<210>336
<211>184
<212>PRT
<213>Chlamydia trachomatis

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<400>336
Gln Glu Thr Lys Phe Asp Lys Gly Ile Gly Gly Tyr Met Ile Cys Cys
  1               5                  10                  15
Asp Lys Val Leu Ser Ser Val Gln Ser Met Pro Val Ile Asp Lys Cys
             20                  25                  30
Ser Val Thr Lys Cys Leu Gln Thr Ala Lys Gln Ala Val Val Leu Ala
          35                  40                  45
Leu Ser Leu Phe Ala Val Phe Ala Ser Gly Ser Leu Ser Ile Leu Ser
      50                  55                  60
Ala Ala Val Leu Phe Ser Gly Thr Ala Ala Val Leu Pro Tyr Leu Leu
 65                  70                  75                  80
Ile Leu Thr Thr Ala Leu Leu Gly Cys Val Tyr Ala Val Ile Val Leu
                 85                  90                  95
Leu Arg Ser Leu Ser Ala Val Val Gln Ser Cys Lys Lys Arg Ser Pro
            100                 105                 110
Glu Glu Ile Glu Gly Ala Ala Arg Pro Ser Asp Gln Gln Glu Ser Gly
        115                 120                 125
Gly Arg Leu Ser Xaa Glu Ser Ala Ser Pro Gln Ala Ser Pro Thr Ser
```

```
    130                 135                 140
Ser Thr Leu Arg Leu Glu Ser Ala Phe Arg Ser Ile Gly Asp Ser Val
145                 150                 155                 160
Ser Gly Ala Phe Asp Asp Ile Asn Lys Asp Asn Ser Arg Ser Arg Phe
                165                 170                 175
Thr Leu Leu Leu Arg Asp Asp Met
            180
<210>337
<211>91
<212>PRT
<213>Chlamydia trachomatis
<400>337
Thr His Pro Arg Arg Ala Val Val Asn Ile Ser Arg Tyr Gly Arg Thr
  1               5                  10                  15
Ala Ala Val Pro Leu Asn Ser Thr Ala Ala Asp Asn Met Asp Lys Leu
            20                  25                  30
Pro Glu Ala Asn Thr Ala Asn Lys Asp Asn Ala Arg Thr Thr Ala Cys
        35                  40                  45
Leu Ala Val Cys Lys His Phe Val Thr Glu His Leu Ser Ile Thr Gly
    50                  55                  60
Ile Asp Cys Thr Leu Asp Lys Thr Leu Ser Gln Gln Ile Met Tyr Pro
65                  70                  75                  80
Pro Ile Pro Leu Ser Asn Phe Val Ser Cys His
                85                  90
<210>338
<211>138
<212>PRT
<213>Chlamydia trachomatis
<400>338
Glu Phe Leu Gly Gly Ser Met Glu Cys Val Lys Gln Leu Cys Arg Asn
  1               5                  10                  15
His Leu Arg Leu Asp Asn Leu Thr Asp Pro Val Arg Ser Val Leu Thr
            20                  25                  30
Lys Gly Thr Thr Ala Glu Lys Val Gln Leu Ala Ala Cys Cys Leu Gly
        35                  40                  45
Val Val Cys Ser Ile Ile Cys Leu Ala Leu Gly Ile Ala Ala Ala Ala
    50                  55                  60
Val Gly Val Ser Cys Gly Gly Phe Ala Leu Gly Leu Gly Ile Ile Ala
65                  70                  75                  80
Ile Leu Leu Gly Ile Val Leu Phe Ala Thr Ser Ala Leu Asp Val Leu
                85                  90                  95
Glu Asn His Gly Leu Val Gly Cys Pro Phe Lys Leu Pro Cys Lys Ser
            100                 105                 110
Ser Pro Ala Asn Glu Pro Ala Val Gln Phe Phe Lys Gly Lys Asn Gly
        115                 120                 125
Ser Ala Asp Gln Val Ile Leu Val Thr Gln
    130                 135
<210>339
<211>136
<212>PRT
<213>Chlamydia trachomatis
<400>339
Leu Ala Pro Phe Leu Leu Thr Glu Phe Ser Ser Leu Ser Leu Leu Leu
  1               5                  10                  15
Ala Phe Ala Leu Ala Leu Glu Ile Phe Cys Ser Thr Ser Ala Val Leu
            20                  25                  30
Gln His Lys Leu Phe His Ile Lys Val Cys Asp Arg Cys Asn Arg Ser
        35                  40                  45
Leu Val Thr Ala Ser Val Val Ser Thr Pro Pro Thr Lys Ala Pro Pro
    50                  55                  60
Lys Arg Lys Ala Pro Thr Pro Lys Asn Lys Asp Ala Ala Thr Thr Glu
```

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 65                  70                  75                  80
Thr Gly Leu Gln Ser Thr Pro Glu Asn Asn Lys Pro Ala Thr Thr Arg
                85                  90                  95
Arg Ala Met Ala Asn Ile Val Ala Thr Ala Thr Ala Ala Asn Leu Phe
            100                 105                 110
Ala Val Gly Asn Glu Leu Leu Arg Ser Lys His Leu Ser Lys Arg Ala
        115                 120                 125
Ile Leu Ser Thr Thr Leu Ser Cys
    130                 135
<210>340
<211>160
<212>PRT
<213>Chlamydia trachomatis
<400>340
Val Arg Asn Glu Ile Trp Leu Lys Ser Val Glu Val Arg Phe Met Thr
  1               5                  10                  15
Lys Val Tyr Ala His Ser Ile Gln Gln Glu Arg Val Val Asp Arg Ile
            20                  25                  30
Ala Leu Leu Glu Arg Cys Leu Asp Leu Ser Asn Ser Leu Pro Thr Ala
        35                  40                  45
Lys Arg Leu Ala Ala Val Ala Val Ala Thr Ile Leu Ala Ile Ala Leu
    50                  55                  60
Leu Val Val Ala Gly Leu Leu Phe Ser Gly Val Leu Cys Ser Pro Val
 65                  70                  75                  80
Ser Val Val Ala Ala Ser Leu Phe Phe Gly Val Gly Ala Phe Leu Leu
                85                  90                  95
Gly Gly Ala Leu Val Gly Gly Val Leu Thr Thr Glu Ala Val Thr Arg
            100                 105                 110
Glu Arg Leu His Arg Ser Gln Thr Leu Met Trp Asn Asn Leu Cys Cys
        115                 120                 125
Lys Thr Ala Glu Val Glu Gln Lys Ile Ser Arg Ala Ser Ala Asn Ala
    130                 135                 140
Lys Ser Asn Asp Lys Leu Glu Asn Ser Val Ser Lys Lys Gly Ala Ser
145                 150                 155                 160
<210>341
<211>144
<212>PRT
<213>Chlamydia trachomatis
<400>341
Lys Ala Ala Gly Glu Ala Leu Leu Lys Lys Ser Ala Glu Lys Thr Arg
  1               5                  10                  15
Arg Gly Ser Ser Ile Tyr Asp Tyr Phe Gln Gly Tyr Ile Ser Pro Glu
            20                  25                  30
Ile Leu Gly Val Leu Phe Ala Asp Ser Gly Val Thr Tyr Gln Glu Thr
        35                  40                  45
Leu Glu Tyr Arg Lys Lys Leu Val Met Leu Ser Lys Lys Tyr Pro Lys
    50                  55                  60
Ser Gly Ser Leu Arg Leu Arg Leu Ala Thr Thr Ala Leu Glu Leu Gly
 65                  70                  75                  80
Leu Val Lys Glu Gly Val Gln Leu Leu Glu Glu Ser Val Lys Asp Ala
                85                  90                  95
Pro Glu Asp Leu Ser Leu Arg Leu Gln Phe Cys Lys Ile Leu Cys Asn
            100                 105                 110
Arg His Asp Tyr Val Arg Ala Lys Tyr His Phe Asp Gln Ala Gln Val
        115                 120                 125
Phe Ser Leu Lys Arg Gly Cys Phe Pro Lys Lys Leu Pro Ile Leu Ser
    130                 135                 140
<210>342
<211>347
<212>PRT
<213>Chlamydia trachomatis
```

<400>342
Leu Cys Leu Lys Leu Lys Gln Ile Gln Leu Cys Arg Thr Phe Val Cys
1 5 10 15
Leu Arg His Trp Met Cys Phe Ile Gly Ile Gly Ser Leu Leu Leu Pro
20 25 30
Thr Ala Leu Arg Ala Thr Glu Arg Met Arg Lys Glu Pro Ile Pro Leu
35 40 45
Leu Asp Lys Gln Gln Ser Phe Trp Asn Val Asp Pro Tyr Cys Leu Glu
50 55 60
Ser Ile Cys Ala Cys Phe Val Ala His Arg Asp Pro Leu Ser Ala Lys
65 70 75 80
Arg Leu Met Tyr Leu Phe Pro Gln Leu Ser Glu Glu Asp Val Ser Val
85 90 95
Phe Ala Arg Cys Ile Leu Ser Ser Lys Arg Pro Glu Tyr Leu Phe Ser
100 105 110
Lys Ser Glu Glu Glu Leu Phe Ala Lys Leu Ile Leu Pro Arg Val Ser
115 120 125
Leu Gly Val His Arg Asp Asp Asp Leu Ala Arg Val Leu Val Leu Ala
130 135 140
Glu Pro Ser Ala Glu Glu Gln Lys Ala Arg Tyr Tyr Ser Leu Tyr Leu
145 150 155 160
Asp Val Leu Ala Leu Arg Ala Tyr Val Glu Arg Glu Arg Leu Ala Ser
165 170 175
Ala Ala His Gly Asp Pro Glu Arg Ile Asp Leu Ala Thr Ile Glu Ala
180 185 190
Ile Asn Thr Ile Leu Phe Gln Glu Glu Arg Trp Arg Tyr Pro Ser Lys
195 200 205
Gln Glu Met Phe Glu Ser Arg Phe Ser Glu Leu Ala Ala Val Thr Asp
210 215 220
Ser Lys Phe Gly Val Cys Leu Gly Thr Val Val Leu Tyr Gln Ala Val
225 230 235 240
Ala Gln Arg Leu Asp Leu Ser Leu Asp Pro Val Thr Pro Pro Gly His
245 250 255
Ile Tyr Leu Arg Tyr Lys Asp Lys Val Asn Ile Glu Thr Thr Ser Gly
260 265 270
Gly Arg His Leu Pro Thr Glu Arg Tyr Cys Glu Cys Ile Lys Glu Ser
275 280 285
Gln Leu Lys Val Arg Ser Gln Met Glu Leu Ile Gly Leu Thr Phe Met
290 295 300
Asn Arg Gly Ala Phe Phe Leu Gln Lys Gly Glu Phe Leu Gln Ala Ser
305 310 315 320
Leu Ala Tyr Glu Gln Ala Gln Ser Tyr Leu Ser Asp Glu Gln Ile Ser
325 330 335
Asp Leu Leu Gly Ile Thr Tyr Val Leu Leu Gly
340 345

<210>343
<211>867
<212>PRT
<213>Chlamydia trachomatis
<400>343
Met Glu Lys Phe Ser Asp Ala Val Ser Glu Ala Leu Glu Lys Ala Phe
1 5 10 15
Glu Leu Ala Lys Asn Ser Lys His Ser Tyr Val Thr Glu Asn His Leu
20 25 30
Leu Lys Ser Leu Leu Gln Asn Pro Gly Ser Leu Phe Cys Leu Val Ile
35 40 45
Lys Asp Val His Gly Asn Leu Gly Leu Leu Thr Ser Ala Val Asp Asp
50 55 60
Ala Leu Arg Arg Glu Pro Thr Val Val Glu Gly Thr Ala Val Ala Ser
65 70 75 80
Pro Ser Pro Ser Leu His Gln Leu Leu Leu Asn Ala His Gln Glu Ala

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                85                  90                  95
Arg Ser Met Gly Asp Glu Tyr Leu Ser Gly Asp His Leu Leu Leu Ala
            100                 105                 110
Phe Trp Arg Ser Thr Lys Glu Pro Phe Ala Ser Trp Arg Lys Thr Val
        115                 120                 125
Lys Thr Thr Ser Glu Ala Leu Lys Glu Leu Ile Thr Lys Leu Arg Gln
    130                 135                 140
Gly Ser Arg Met Asp Ser Pro Ser Ala Glu Glu Asn Leu Lys Gly Leu
145                 150                 155                 160
Glu Lys Tyr Cys Lys Asn Leu Thr Val Leu Ala Arg Glu Gly Lys Leu
                165                 170                 175
Asp Pro Val Ile Gly Arg Asp Glu Glu Ile Arg Arg Thr Ile Gln Val
            180                 185                 190
Leu Ser Arg Arg Thr Lys Asn Asn Pro Met Leu Ile Gly Glu Pro Gly
        195                 200                 205
Val Gly Lys Thr Ala Ile Ala Glu Gly Leu Ala Leu Arg Ile Val Gln
    210                 215                 220
Gly Asp Val Pro Glu Ser Leu Lys Glu Lys His Leu Tyr Val Leu Asp
225                 230                 235                 240
Met Gly Ala Leu Ile Ala Gly Ala Lys Tyr Arg Gly Glu Phe Glu Glu
                245                 250                 255
Arg Leu Lys Ser Val Leu Lys Ser Val Glu Ala Ser Glu Gly Glu Cys
            260                 265                 270
Ile Leu Phe Ile Asp Glu Val His Thr Leu Val Gly Ala Gly Ala Thr
        275                 280                 285
Asp Gly Ala Met Asp Ala Ala Asn Leu Leu Lys Pro Ala Leu Ala Arg
    290                 295                 300
Gly Thr Leu His Cys Ile Gly Ala Thr Thr Leu Asn Glu Tyr Gln Lys
305                 310                 315                 320
Tyr Ile Glu Lys Asp Ala Ala Leu Glu Arg Arg Phe Gln Pro Ile Phe
                325                 330                 335
Val Thr Glu Pro Ser Leu Glu Asp Ala Val Phe Ile Leu Arg Gly Leu
            340                 345                 350
Arg Glu Lys Tyr Glu Ile Phe His Gly Val Arg Ile Thr Glu Gly Ala
        355                 360                 365
Leu Asn Ala Ala Val Val Leu Ser Tyr Arg Tyr Ile Thr Asp Arg Phe
    370                 375                 380
Leu Pro Asp Lys Ala Ile Asp Leu Ile Asp Glu Ala Ala Ser Leu Ile
385                 390                 395                 400
Arg Met Gln Ile Gly Ser Leu Pro Leu Pro Ile Asp Glu Lys Glu Arg
                405                 410                 415
Glu Leu Ser Ala Leu Ile Val Lys Gln Glu Ala Ile Lys Arg Glu Gln
            420                 425                 430
Ala Pro Ala Tyr Gln Glu Glu Ala Glu Asp Met Xaa Xaa Ala Ile Asp
        435                 440                 445
Arg Val Lys Glu Glu Leu Ala Ala Leu Arg Leu Arg Trp Asp Glu Glu
    450                 455                 460
Lys Gly Leu Ile Ala Gly Leu Lys Glu Lys Lys Asn Ala Leu Glu Asn
465                 470                 475                 480
Leu Lys Phe Ala Glu Glu Glu Ala Glu Arg Thr Ala Asp Tyr Asn Arg
                485                 490                 495
Val Ala Glu Leu Arg Tyr Ser Leu Ile Pro Ser Leu Glu Glu Glu Ile
            500                 505                 510
His Leu Ala Glu Glu Ala Leu Asn Gln Arg Asp Gly Arg Leu Leu Gln
        515                 520                 525
Glu Glu Val Asp Glu Arg Leu Ile Ala Gln Val Val Ala Asn Trp Thr
    530                 535                 540
Gly Ile Pro Val Gln Lys Met Leu Glu Gly Glu Ser Glu Lys Leu Leu
545                 550                 555                 560
Val Leu Glu Glu Ser Leu Glu Glu Arg Val Val Gly Gln Pro Phe Ala
                565                 570                 575
```

Sequence Listing

Ile Ala Ala Val Ser Asp Ser Ile Arg Ala Ala Arg Val Gly Leu Ser
580 585 590
Asp Pro Gln Arg Pro Leu Gly Val Phe Leu Phe Leu Gly Pro Thr Gly
595 600 605
Val Gly Lys Thr Glu Leu Ala Lys Ala Leu Ala Glu Leu Leu Phe Asn
610 615 620
Lys Glu Glu Ala Met Ile Arg Phe Asp Met Thr Glu Tyr Met Glu Lys
625 630 635 640
His Ser Val Ser Lys Leu Ile Gly Ser Pro Pro Gly Tyr Val Gly Tyr
645 650 655
Glu Glu Gly Gly Ser Leu Ser Glu Ala Leu Arg Arg Arg Pro Tyr Ser
660 665 670
Val Val Leu Phe Asp Glu Ile Glu Lys Ala Asp Lys Glu Val Phe Asn
675 680 685
Ile Leu Leu Gln Ile Phe Asp Asp Gly Ile Leu Thr Asp Ser Lys Lys
690 695 700
Arg Lys Val Asn Cys Lys Asn Ala Leu Phe Ile Met Thr Ser Asn Ile
705 710 715 720
Gly Ser Gln Glu Leu Ala Asp Tyr Cys Thr Lys Lys Gly Thr Ile Val
725 730 735
Asp Lys Glu Ala Val Leu Ser Val Val Ala Pro Ala Leu Lys Asn Tyr
740 745 750
Phe Ser Pro Glu Phe Ile Asn Arg Ile Asp Asp Ile Leu Pro Phe Val
755 760 765
Pro Leu Thr Thr Glu Asp Ile Val Lys Ile Val Gly Ile Gln Met Asn
770 775 780
Arg Val Ala Leu Arg Leu Leu Glu Arg Lys Ile Ser Leu Thr Trp Asp
785 790 795 800
Asp Ser Leu Val Leu Phe Leu Ser Glu Gln Gly Tyr Asp Ser Ala Phe
805 810 815
Gly Ala Arg Pro Leu Lys Arg Leu Ile Gln Gln Lys Val Val Thr Met
820 825 830
Leu Ser Lys Ala Leu Leu Lys Gly Asp Ile Lys Pro Gly Met Ala Val
835 840 845
Glu Leu Thr Met Ala Lys Asp Val Val Val Phe Lys Ile Lys Thr Asn
850 855 860
Pro Ala Val
865

<210>344
<211>447
<212>PRT
<213>Chlamydia trachomatis
<400>344
Ala His Leu Thr His Asp Glu Asp Ile Ala Asn Gln Glu Thr Ala Ala
1 5 10 15
Asp Leu Lys Ser Ile Thr Phe Leu Leu Thr Ser Phe Val Glu Glu Ile
20 25 30
Ser Trp Ile Gln Pro Ala Leu Ile Ala Leu Pro Gln Gln Val Ala Asn
35 40 45
Met Leu Leu Ala Ser Pro Glu Leu Gln Glu Tyr His Phe Tyr Leu Lys
50 55 60
Lys Leu Phe Arg Leu Ala Pro His Thr Gly Thr Ser Arg Glu Glu Lys
65 70 75 80
Ile Leu Ala Ser Ser Phe Pro Ala Leu Glu Val Ala Tyr Lys Thr Phe
85 90 95
Cys Ser Leu Thr Asp Ser Glu Ile Pro Phe Gly Glu Ala Val Asp Ser
100 105 110
Glu Gly Lys Ser His Pro Leu Ser His Ala Leu Ala Ser Leu Tyr Met
115 120 125
Gln Ser Thr Asp Arg Glu Leu Arg Lys Asn Thr Tyr Gln Lys Gln Cys
130 135 140

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Gln Arg His His Gly Tyr Arg Leu Ser Leu Ala Asn Leu Leu Asn Gly
145                 150                 155                 160
Lys Ile Gln Ala His Leu Phe Asn Ala Lys Ala Arg Asp Tyr Asp Ser
                165                 170                 175
Cys Leu Glu Ala Ala Leu Phe Gln Asn Asp Ile Ser Thr Ser Val Val
            180                 185                 190
Thr Thr Leu Ile Asp Thr Val Lys Gln His Thr His Leu Ile Thr Lys
        195                 200                 205
Tyr Phe Gln Leu Lys Gln Lys Ala Leu Gly Leu Ser Asp Phe His Phe
    210                 215                 220
Tyr Asp Val Tyr Ala Pro Leu Val Ala Ser Glu Ala Ser Arg His Tyr
225                 230                 235                 240
Ser Tyr Gln Glu Ala Val Thr Leu Ile Cys Asp Ser Leu Ser Pro Leu
                245                 250                 255
Gly Asn Asp Tyr Val Glu Thr Leu Arg Lys Gly Leu Thr Ser Asp Gly
            260                 265                 270
Trp Val Asp Lys Tyr Glu Asn Thr Asn Lys Arg Ser Gly Ala Tyr Ser
        275                 280                 285
Ser Gly Cys Tyr Asn Ser Lys Pro Tyr Ile Leu Leu Asn Tyr Thr Gly
    290                 295                 300
Thr Leu Tyr Asp Val Ser Val Val Ala His Glu Gly Gly His Ser Met
305                 310                 315                 320
His Ser Phe Leu Ser His Lys His Gln Ser Tyr His Glu Ala Gln Tyr
                325                 330                 335
Pro Ile Phe Leu Ala Glu Ile Ala Ser Thr Leu Asn Glu Thr Leu Leu
            340                 345                 350
Met Glu Phe Leu Leu Lys Gln Ala Pro Ser Lys Glu Glu Lys Ile Ala
        355                 360                 365
Ile Leu Ser Arg Ser Leu Asp Thr Val Phe Ala Thr Leu Phe Arg Gln
    370                 375                 380
Thr Leu Phe Ala Ala Phe Glu Leu Glu Met His Ser Ala Ala Glu Gln
385                 390                 395                 400
Gly Leu Pro Leu Thr Glu Glu Phe Phe Ser Gln Ser Tyr Glu Lys Leu
                405                 410                 415
Gln Arg Leu Phe Tyr Gly Asp Cys Ile Thr Phe Asp Glu His Ser Cys
            420                 425                 430
Ile Glu Ser Ala Arg Ile Pro His Phe Tyr Tyr Asn Phe Tyr Val
        435                 440                 445
<210>345
<211>80
<212>PRT
<213>Chlamydia trachomatis
<400>345
Leu Leu Met Asn Ile Ala Val Ser Asn Arg Leu Ala Phe Leu Ile Ser
  1               5                  10                  15
Thr Thr Thr Ser Met Phe Asn Gln Tyr Ala Thr Gly Ile Ile Ala Ser
            20                  25                  30
Leu Cys Phe Ser Glu Arg Ile Leu Ser Gly Glu Glu Gly Ala Gln Glu
        35                  40                  45
Ala Tyr Leu Thr Phe Leu Arg Ser Gly Gly Ser Asp Phe Pro Ile Glu
    50                  55                  60
Ile Leu Lys Lys Ser Gly Leu Asp Met Thr Ser Ile Ser Ser Tyr Ala
65                  70                  75                  80
<210>346
<211>74
<212>PRT
<213>Chlamydia trachomatis
<400>346
Met Ser Asp Gln Ala Thr Thr Leu Lys Ile Lys Pro Leu Gly Asp Arg
  1               5                  10                  15
Ile Leu Val Lys Arg Glu Glu Glu Ala Ser Thr Ala Arg Gly Gly Ile
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            20                  25                  30
Ile Leu Pro Asp Thr Ala Lys Lys Lys Gln Asp Arg Ala Glu Val Val
        35                  40                  45
Ala Leu Gly Thr Gly Lys Lys Asp Asp Lys Gly Gln Gln Leu Pro Phe
    50                  55                  60
Glu Val Gln Val Gly Asp Ile Val Leu Ile
65                  70
<210>347
<211>258
<212>PRT
<213>Chlamydia trachomatis
<400>347
Met Val Ala Lys Asn Ile Lys Tyr Asn Glu Glu Ala Arg Lys Lys Ile
 1               5                  10                  15
Gln Lys Gly Val Lys Thr Leu Ala Glu Ala Val Lys Val Thr Leu Gly
            20                  25                  30
Pro Lys Gly Arg His Val Val Ile Asp Lys Ser Phe Gly Ser Pro Gln
        35                  40                  45
Val Thr Lys Asp Gly Val Thr Val Ala Lys Glu Val Glu Leu Ala Asp
    50                  55                  60
Lys His Glu Asn Met Gly Ala Gln Met Val Lys Glu Val Ala Ser Lys
65                  70                  75                  80
Thr Ala Asp Lys Ala Gly Asp Gly Thr Thr Thr Ala Thr Val Leu Ala
                85                  90                  95
Glu Ala Ile Tyr Thr Glu Gly Leu Arg Asn Val Thr Ala Gly Ala Asn
            100                 105                 110
Pro Met Asp Leu Lys Arg Gly Ile Asp Lys Ala Val Lys Val Val Val
        115                 120                 125
Asp Gln Val Lys Lys Ile Ser Lys Pro Val Gln His His Lys Glu Ile
    130                 135                 140
Ala Gln Val Ala Thr Ile Ser Ala Asn Asn Asp Ala Glu Ile Gly Asn
145                 150                 155                 160
Leu Ile Ala Lys Ala Met Glu Lys Val Gly Lys Asn Gly Ser Ile Thr
                165                 170                 175
Val Glu Glu Ala Lys Gly Phe Glu Thr Val Leu Asp Val Val Glu Gly
            180                 185                 190
Met Asn Phe Asn Arg Gly Tyr Leu Ser Ser Tyr Phe Ala Thr Asn Pro
        195                 200                 205
Glu Thr Gln Glu Cys Val Leu Glu Asp Ala Leu Val Leu Ile Tyr Asp
    210                 215                 220
Lys Lys Ile Ser Gly Ile Lys Asp Phe Leu Pro Val Leu Gln Gln Val
225                 230                 235                 240
Ala Glu Ser Gly Arg Pro Leu Leu Ile Ile Ala Glu Asp Ile Glu Gly
                245                 250                 255
Glu Leu

<210>348
<211>224
<212>PRT
<213>Chlamydia trachomatis
<400>348
Arg Arg Thr Leu Ala Thr Leu Val Val Asn Arg Ile Arg Gly Gly Phe
 1               5                  10                  15
Arg Val Cys Ala Val Lys Ala Pro Gly Phe Gly Asp Arg Arg Lys Ala
            20                  25                  30
Met Leu Glu Asp Ile Ala Ile Leu Thr Gly Gly Gln Leu Ile Ser Glu
        35                  40                  45
Glu Leu Gly Met Lys Leu Glu Asn Ala Asn Leu Ala Met Leu Gly Lys
    50                  55                  60
Ala Lys Lys Val Ile Val Ser Lys Glu Asp Thr Thr Ile Val Glu Gly
65                  70                  75                  80
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Met Gly Glu Lys Glu Ala Leu Glu Ala Arg Cys Glu Ser Ile Lys Lys
                85                  90                  95
Gln Ile Glu Asp Ser Ser Ser Asp Tyr Asp Lys Glu Lys Leu Gln Glu
            100                 105                 110
Arg Leu Ala Lys Leu Ser Gly Gly Val Ala Val Ile Arg Val Gly Ala
        115                 120                 125
Ala Thr Glu Ile Glu Met Lys Glu Lys Lys Asp Arg Val Asp Asp Ala
    130                 135                 140
Gln His Ala Thr Ile Ala Ala Val Glu Glu Gly Ile Leu Pro Gly Gly
145                 150                 155                 160
Gly Thr Ala Leu Ile Arg Cys Ile Pro Thr Leu Glu Ala Phe Leu Pro
                165                 170                 175
Met Leu Thr Asn Glu Asp Glu Gln Ile Gly Ala Arg Ile Val Leu Lys
            180                 185                 190
Ala Leu Ser Ala Pro Leu Lys Gln Ile Ala Ala Asn Ala Gly Lys Glu
        195                 200                 205
Gly Ala Ile Ile Phe Gln Gln Val Met Ser Phe Cys Glu Arg Arg Ile
    210                 215                 220
<210>349
<211>90
<212>PRT
<213>Chlamydia trachomatis
<400>349
Asn Lys Leu Leu Gln Thr Gln Glu Lys Lys Val Leu Ser Ser Ser Asn
  1               5                  10                  15
Lys Leu Cys Pro Ser Ala Asn Glu Gly Tyr Asp Ala Leu Arg Asp Ala
             20                  25                  30
Tyr Thr Asp Met Leu Glu Ala Gly Ile Leu Asp Pro Ala Lys Val Thr
         35                  40                  45
Arg Ser Ala Leu Glu Ser Ala Ala Ser Val Ala Gly Leu Leu Leu Thr
     50                  55                  60
Thr Glu Ala Leu Ile Ala Glu Ile Pro Glu Glu Lys Pro Ala Ala Ala
 65                  70                  75                  80
Pro Ala Met Pro Gly Ala Gly Met Asp Tyr
                85                  90
<210>350
<211>262
<212>PRT
<213>Chlamydia trachomatis
<400>350
Met Phe Lys Leu Ile Lys Ser Ala Phe Leu Ile Ala Cys Cys Ile Val
  1               5                  10                  15
Gly Tyr Phe Trp Ile Lys Lys Glu Ser Ile Val Glu Gln Trp Leu Ser
             20                  25                  30
Gln Gln Leu His Ala Gln Val Thr Val Gly Asn Ile Ser Pro Gly Leu
         35                  40                  45
Ser Lys Thr Lys Ile Arg His Leu Cys Ile His Asn Pro Leu Ser Ser
     50                  55                  60
Asp Lys Tyr Pro Tyr Ala Val Glu Ile Glu Tyr Val Ser Leu Lys Tyr
 65                  70                  75                  80
Ser Ile Val Thr Met Ile Leu Ser Lys Lys Ile Asp Ile Ser Asp Val
                85                  90                  95
Ile Leu Gln Gly Thr Ser Leu Thr Val Phe Pro Cys Glu Gly Ser Ser
            100                 105                 110
Lys Thr Asn Trp Ser Phe Phe Trp Asp Ser Phe Ile Asn His Ser Asn
        115                 120                 125
Glu Leu Thr Lys Phe His Ser Ser Gln Phe Glu Ser Ser Val Asp Thr
    130                 135                 140
Ile Pro Val Phe Ile Lys Arg Cys Leu Cys Thr Asn Thr Arg Val Ser
145                 150                 155                 160
Gly Ile Lys Asn Asn Tyr Lys Glu Ile Pro Thr Thr Pro Val Pro Ser
```

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                165                 170                 175
Leu Glu Phe Arg Gly Ser Leu Ser Cys Ser Pro Leu Pro Thr Leu Gly
            180                 185                 190
Glu Thr Ala Arg Ala Leu Leu Tyr Leu Ile Val Glu Glu Ser Phe Tyr
        195                 200                 205
His Ala Asn Val Ser Gly Asp Ile Ala Arg Pro Leu Ser Lys Gln Ala
    210                 215                 220
Arg Ala Tyr Phe Asn Ser Ser Leu Ser Asp Tyr Ser Tyr Leu Lys Lys
225                 230                 235                 240
Arg Gly Ala Phe Pro Ser Asn Leu Thr Asn Glu Leu Glu Gly Phe Met
                245                 250                 255
Lys Glu Leu Leu Phe Arg
            260
<210>351
<211>258
<212>PRT
<213>Chlamydia trachomatis
<400>351
Leu Gln Gln Arg Phe Phe Tyr Met Asn Val Ser Asp Leu Leu Asn Ile
  1               5                  10                  15
Leu Asn Glu Leu Leu His Pro Glu Tyr Phe Ser Asp Tyr Gly Pro Asn
             20                  25                  30
Gly Leu Gln Val Gly Asn Thr Gln Thr Ala Ile Arg Lys Val Ala Val
         35                  40                  45
Ala Val Thr Ala Asp Leu Ala Thr Ile Glu Lys Ala Ile Ala Cys Glu
     50                  55                  60
Ala Asn Val Leu Leu Val His His Gly Ile Phe Trp Lys Gly Met Pro
 65                  70                  75                  80
Tyr Pro Ile Thr Gly Ile Leu Tyr Gln Arg Met Gln Arg Leu Met Glu
                85                  90                  95
Gly Asn Ile Gln Leu Ile Ala Tyr His Leu Pro Leu Asp Ala His Thr
            100                 105                 110
Thr Ile Gly Asn Asn Trp Lys Val Ala Arg Asp Leu Gly Trp Glu Gln
        115                 120                 125
Leu Glu Ser Phe Gly Ser Ser Gln Pro Ser Leu Gly Val Lys Gly Val
    130                 135                 140
Phe Pro Glu Met Glu Val His Asp Phe Ile Ser Gln Leu Ser Ala Tyr
145                 150                 155                 160
Tyr Gln Thr Pro Val Leu Ala Lys Ala Leu Gly Gly Lys Lys Arg Val
                165                 170                 175
Ser Ser Ala Ala Leu Ile Ser Gly Gly Ala Tyr Arg Glu Ile Ser Glu
            180                 185                 190
Ala Lys Asn Gln Gln Val Asp Cys Phe Ile Thr Gly Asn Phe Asp Glu
        195                 200                 205
Pro Ala Trp Ser Leu Ala His Glu Leu Ala Ile His Phe Leu Ala Phe
    210                 215                 220
Gly His Thr Ala Thr Glu Lys Val Gly Pro Lys Ala Leu Ala Gln Tyr
225                 230                 235                 240
Leu Lys Gly Ala Gly Leu Glu Ser Val Val Phe Leu Asp Thr Asp Asn
                245                 250                 255
Pro Phe

<210>352
<211>341
<212>PRT
<213>Chlamydia trachomatis
<400>352
Val Cys Trp Tyr Asp Phe Thr Arg Ile Ser Met Ile Arg Thr Ala Phe
  1               5                  10                  15
Phe Gln Asp Lys Glu Cys Phe Pro Leu Glu Ala Leu Arg Ser Trp Phe
             20                  25                  30
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```
Leu Glu Ser Lys Arg Ser Phe Pro Trp Arg Asp Ser Pro Thr Pro Tyr
          35                  40                  45
Arg Val Trp Val Ser Glu Val Met Leu Gln Gln Thr Arg Ala Glu Val
      50                  55                  60
Val Val Pro Tyr Phe Leu Lys Trp Met Glu Arg Phe Pro Thr Leu Gln
 65                  70                  75                  80
Asp Leu Ala Gln Ala Arg Glu Ser Asp Val Val Gln Leu Trp Glu Gly
                 85                  90                  95
Leu Gly Tyr Tyr Ser Arg Ala Arg Asn Leu Leu Ala Gly Ala Arg Val
            100                 105                 110
Ile Thr Glu Ile Phe Gly Gly Glu Ile Pro Asn Asp Leu Ala Leu Leu
        115                 120                 125
Ser Ser Ile Lys Gly Ile Gly Ser Tyr Thr Ala Asn Ala Ile Leu Ala
    130                 135                 140
Phe Ala Phe Lys Gln Lys Asn Pro Ala Val Asp Gly Asn Val Leu Arg
145                 150                 155                 160
Val Met Ser Arg Leu Phe Ala Ile Glu Glu Ser Ile Asp Arg Met Asn
                165                 170                 175
Thr Arg Arg Glu Ile Thr Gly Leu Cys Glu Ser Leu Leu Pro Asp Gln
            180                 185                 190
Asp Pro Gln Val Ile Ala Glu Ser Phe Ile Glu Leu Gly Ala Arg Ile
        195                 200                 205
Cys Lys Lys Gln Pro Leu Cys Glu Gln Cys Pro Leu Arg Ser Phe Cys
    210                 215                 220
Thr Ala Tyr Arg Gln Gly Thr Met Glu Gln Tyr Pro Val Arg Asn Thr
225                 230                 235                 240
Arg Ala Ala Ile Ser Arg Leu Phe Arg Ala Val Val Ile Val Leu Tyr
                245                 250                 255
Lys Asp Gln Val Leu Met Thr Lys Arg Glu Glu Lys Glu Ile Met Ala
            260                 265                 270
Gly Leu Tyr Glu Phe Pro Tyr Tyr Gln Leu Pro Lys Glu Asp Cys Cys
        275                 280                 285
Asp Ile Glu Lys Ile Ile His Leu Val Gln Lys Asp Tyr Gly Glu Thr
    290                 295                 300
Leu His Phe Val Ser Ser Leu Pro Ser Gln Lys Gln Val Phe Thr Xaa
305                 310                 315                 320
Ile Ala Leu His Tyr Ser His Met Phe Ser Thr Xaa Asn Ile Val Tyr
                325                 330                 335
Arg Ile Ala Thr Arg
            340
<210>353
<211>276
<212>PRT
<213>Chlamydia trachomatis
<400>353
Trp Ile Met Gln Glu Phe Ile Gly Thr Ala Asp Arg His Ile Arg Leu
  1                 5                  10                  15
Ser Ser Phe Leu Arg Thr Ser Leu Pro His Leu Pro Lys Lys Thr Ile
             20                  25                  30
Leu Glu Ser Val Arg Tyr His Gly Cys Arg Val Asn Gly Arg Ile Glu
         35                  40                  45
Arg Phe Glu Ser Tyr Lys Leu Gln Pro Gly Asp Arg Val Ser Leu Gln
     50                  55                  60
Ile Ile Glu His Ser Ser Pro Gln Leu Leu Trp Glu Asp Glu His Leu
 65                  70                  75                  80
Cys Ile Tyr Asn Lys Pro Ala Lys Gln Thr Ser Glu Asp Leu Ala His
                 85                  90                  95
Gln Leu Asn Val His Leu Val His Arg Leu Asp Arg Asp Thr Ser Gly
            100                 105                 110
Cys Ile Leu Phe Ala Lys His Ala Lys Ala Ser Ser Leu Ile Thr Gln
        115                 120                 125
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US 6,635,744 B2

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Leu Phe Lys Asn Arg Glu Ile Asp Lys Arg Tyr Ile Ala Leu Val Phe
    130                 135                 140
Gly Gln Pro Arg Gln Glu Ser Gly Ile Ile Thr Thr Tyr Thr Ala Pro
145                 150                 155                 160
Cys Tyr Arg Arg Thr Gly Ala Val Leu Phe Gly Asn Thr Asp Gln Asn
                165                 170                 175
Ser Gly Lys Ile Thr Ile Thr Lys Trp Glu Ile Leu Thr Arg Tyr Pro
            180                 185                 190
Lys Tyr Thr Leu Leu Leu Cys Arg Pro Val Thr Gly Arg Thr His Gln
        195                 200                 205
Ile Arg Leu His Met Lys Thr Ile Gly His Pro Ile Val Gly Asp Val
    210                 215                 220
Asp Tyr Gly Asn Gln Glu Gln Pro Lys Asn Val Val Arg Thr Leu Leu
225                 230                 235                 240
His Ala Ala Ser Leu Ala Phe Ile Ser Pro Phe Ser Asn Glu Lys Ile
                245                 250                 255
Glu Ile Ser Ser Leu Thr Pro Ser Gln Asp Pro Tyr Pro Phe Tyr Ala
            260                 265                 270
Asp Phe Arg Pro
        275
<210>354
<211>673
<212>PRT
<213>Chlamydia trachomatis
<400>354
Asn Phe Leu Leu Lys Ile Lys Asn Pro Tyr Lys Asn Pro Gly Val Lys
  1                 5                  10                  15
Gly Met Ser Phe Gly Ile Gly Ser Ala Cys Ser Ser Leu Trp Ser Arg
             20                  25                  30
Leu Cys Gly Ser Ser Gly Ser Glu Gly Asn Ser Glu Glu Gly Val Thr
         35                  40                  45
Ser Ser Gly Ser Asp Ala Ala Ser Gly Ser Gly Ala Ala Ser Ala Val
     50                  55                  60
Cys Gln Gln Pro Thr Ser Ser Ala Ser Thr Glu Gly Asn Gly Pro Ser
 65                  70                  75                  80
Val Gln Ile Pro Met Val Gly Thr Tyr Ser Ala Asn Val Gln Ser Leu
                 85                  90                  95
Val Asn Gln Gly His Gly Gly Arg Gly Phe Val Asn Arg Cys Tyr Gln
            100                 105                 110
Lys Tyr Ser Ala Ser Gly Val Ser Leu Thr Ser Ile Ser Ile Gly Ala
        115                 120                 125
Gly Asp Ser Val Asp Gly Pro Leu Pro Ser Val Val Ile Thr Gln Gln
    130                 135                 140
Pro Gln Gly Ser Gly Ser Ser Ala Arg Gly Ala Gly Ser Leu Gln Met
145                 150                 155                 160
Gly Ala Val Leu Ser Gly Met Ser Thr Leu Thr Gly Asn Ser Ile Phe
                165                 170                 175
Asp Leu Phe Gly Glu Ser Gln Ile Thr Asn Leu Ile Gly Asp Ala Val
            180                 185                 190
Asp Gly Thr Ser Thr Ser Ser Ser Pro Leu Arg Asp Ala Thr Lys Gly
        195                 200                 205
Ala Ser Thr Ala Asp Leu Ile Ala Leu Phe Leu Ala Leu Gly Gly Ser
    210                 215                 220
Gly Ser Gln Gly Val Asn Ser Pro Leu Val Ala Thr Leu Leu Ser Arg
225                 230                 235                 240
Tyr Ser Leu Ser Gly Ser Leu Asp Ala Lys Lys Leu Gln Glu Leu Leu
                245                 250                 255
Glu Ala Leu Lys Lys Leu Gln Asn Asp Ala Pro Thr Ser Asp Gly Ala
            260                 265                 270
Arg Pro Gly Leu Gly Glu Cys Cys Thr His Leu Cys Gly Ala Leu Ser
        275                 280                 285
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Ser Ser Pro Asn Pro Ile Val Ser Ala Val Gly Ile Ala Gly Thr Gly
    290                 295                 300
Leu Thr Glu Leu Leu Met Leu Ala Ala Gln Ser Gln Arg Val Arg Lys
305                 310                 315                 320
Cys Ala Leu Leu Cys His Asp Ala Cys Lys Pro Cys Cys Ala Ser Ala
                325                 330                 335
Cys Gly Tyr Pro Ser Cys Gly Cys Ala Asp Gly Glu Gly Gly Cys Gly
            340                 345                 350
Ser Phe Gly Ala Leu Val Cys Ser Cys Ala Glu Leu Trp Cys Cys Gln
        355                 360                 365
Glu Ser Pro Ala Glu Glu Ala Asn Leu Glu Glu Tyr Ala Arg Lys Leu
    370                 375                 380
Lys Asp Leu Glu Met Ala Val Gly Ser Thr Thr Phe Met Leu Gly Leu
385                 390                 395                 400
His Asn Leu Gly Ile Ser Phe Ser Asp Leu Val Lys Gly Asn Phe Thr
                405                 410                 415
Asn Leu Pro Thr Pro Glu Gln Leu Glu Thr Ala Cys Lys Asp Ala Val
            420                 425                 430
Ser Ser Leu Gly Lys Leu Met Met Arg Ile Thr His Glu Lys Trp Leu
        435                 440                 445
Gly Arg Leu Cys Ser Cys Ala Gly Ile Leu Asp Asn Pro Phe Trp Lys
    450                 455                 460
Arg Ala Leu Cys Ser Gly Leu Ala Gly Gly Thr His Met Leu Ser Leu
465                 470                 475                 480
Gln Asp Leu Thr Ser Arg Val Lys Val Ile Thr Ser Ser Gly Asn Lys
                485                 490                 495
Gln Glu Ala Glu Asn Leu Asp Leu Glu Leu Leu Leu Pro Ala Leu Ser
            500                 505                 510
Ser Leu Gln Val Thr Gly Thr Glu Glu Asp Cys Asp Asp Glu Gly Gln
        515                 520                 525
Gly Leu Asn Thr Asp Gln Leu Thr Met Leu Leu Cys Lys Phe Cys Ser
    530                 535                 540
Val Leu Ser Ala Ala Ile Gly Asn Asp Arg Arg Pro Ile Trp Leu Thr
545                 550                 555                 560
Pro Lys Gln Ile Thr Glu Ile Leu Cys Val Cys Met Val Met Ser Gly
                565                 570                 575
Ile Ser Ile Val Gly Gly Pro Ser Asn Gln Ser Ala Glu Tyr Gln Glu
            580                 585                 590
Phe Gln Asn Thr Val Met Gln Glu Ser Leu Thr His Leu Gln Ser Ser
        595                 600                 605
Leu Arg Val Ser Lys Arg Thr Asn Asn Arg Thr Arg Ala Glu Val Arg
    610                 615                 620
Lys Leu Val Val Lys Tyr Glu Ala Gln Ser Ser Phe Leu Ser Leu Leu
625                 630                 635                 640
Glu Gly Leu Arg Asp Pro Asn Ser Lys Glu Ser Lys Asp Leu Met Arg
                645                 650                 655
Glu Cys Phe Ala Ser Trp Ala Gln Lys Ala Gly Val Gln Ser Ser Ser
            660                 665                 670
Ile
```

<210>355
<211>287
<212>PRT
<213>Chlamydia trachomatis
<400>355

```
Leu Met Leu Lys Ile Asp Leu Thr Gly Lys Ile Ala Phe Ile Ala Gly
  1               5                  10                  15
Ile Gly Asp Asp Asn Gly Tyr Gly Trp Gly Ile Ala Lys Met Leu Ala
             20                  25                  30
Glu Ala Gly Ala Thr Ile Leu Val Gly Thr Trp Val Pro Ile Tyr Lys
         35                  40                  45
```

```
Ile Phe Ser Gln Ser Trp Glu Leu Gly Lys Phe Asn Ala Ser Arg Glu
     50                  55                  60
Leu Ser Asn Gly Glu Leu Leu Thr Phe Ala Lys Ile Tyr Pro Met Asp
 65                  70                  75                  80
Ala Ser Phe Asp Thr Pro Glu Asp Ile Pro Gln Glu Ile Leu Glu Asn
                 85                  90                  95
Lys Arg Tyr Lys Asp Leu Ser Gly Tyr Thr Val Ser Glu Val Val Glu
            100                 105                 110
Gln Val Lys Lys Asp Phe Gly His Ile Asp Ile Leu Val His Ser Leu
        115                 120                 125
Ala Asn Ser Pro Glu Ile Ala Lys Pro Leu Leu Asp Thr Ser Arg Lys
    130                 135                 140
Gly Tyr Leu Ala Ala Leu Ser Thr Ser Ser Tyr Ser Phe Ile Ser Leu
145                 150                 155                 160
Leu Ser His Phe Gly Pro Ile Met Asn Ala Gly Ala Ser Thr Ile Ser
                165                 170                 175
Leu Thr Tyr Leu Ala Ser Met Arg Ala Val Pro Gly Tyr Gly Gly Gly
            180                 185                 190
Met Lys Pro Ala Lys Ala Ala Leu Glu Ser Asp Thr Lys Val Leu Ala
        195                 200                 205
Trp Glu Ala Gly Arg Arg Trp Gly Val Arg Val Asn Thr Ile Ser Ala
    210                 215                 220
Gly Pro Leu Ala Ser Arg Ala Gly Lys Ala Ile Gly Phe Ile Glu Arg
225                 230                 235                 240
Met Val Asp Tyr Tyr Gln Asp Trp Ala Pro Leu Pro Ser Pro Met Glu
                245                 250                 255
Ala Glu Gln Val Gly Ala Ala Ala Ala Phe Leu Val Ser Pro Leu Leu
            260                 265                 270
Ala Gln Leu Arg Glu Lys Leu Ser Met Trp Ile Thr Glu Pro Met
        275                 280                 285
<210>356
<211>298
<212>PRT
<213>Chlamydia trachomatis
<400>356
Met Ser Leu Gln Lys Leu Leu Val Thr Asp Ile Asp Gly Thr Ile Thr
  1                 5                  10                  15
His Gln Ser His Leu Leu His Asp Arg Val Val Lys Ala Leu His Gln
             20                  25                  30
Tyr Tyr Asp Ser Gly Trp Gln Leu Phe Phe Leu Thr Gly Arg Tyr Phe
         35                  40                  45
Ser Tyr Ala Tyr Pro Leu Phe Gln Asn Phe Ser Val Pro Phe Leu Leu
     50                  55                  60
Gly Ser Gln Asn Gly Ser Ser Val Trp Ser Ser Thr Asp Lys Glu Phe
 65                  70                  75                  80
Ile Tyr Phe Arg Ser Leu Ser Arg Asp Phe Leu Cys Val Leu Glu Lys
                 85                  90                  95
Tyr Phe Glu Asp Leu Asp Leu Ile Ala Cys Ile Glu Ser Gly Ala Ser
            100                 105                 110
Asn Arg Asp Val Tyr Phe Arg Lys Gly Leu Gly Lys Thr Ser Gln Glu
        115                 120                 125
Leu Lys Ala Ile Leu Asp Ala Val Tyr Phe Pro Thr Pro Glu Ala Ala
    130                 135                 140
Arg Leu Leu Val Asp Val Gln Gly His Leu Ser Glu Glu Phe Ser Tyr
145                 150                 155                 160
Glu Asp Phe Ala Ile Ala Lys Phe Phe Gly Glu Arg Glu Glu Val Lys
                165                 170                 175
Lys Ile Met Asp Arg Phe Ile Gln Ser Pro Glu Val Ser Ser Gln Val
            180                 185                 190
Thr Met Asn Tyr Met Arg Trp Pro Phe Asp Phe Lys Tyr Ala Val Leu
        195                 200                 205
```

US 2002/0064806 A1

```
Leu Leu Thr Leu Lys Asp Val Ser Lys Gly Phe Ala Val Asp Gln Val
    210                 215                 220
Val Gln Thr Phe Tyr Lys Glu Asn Lys Pro Phe Ile Met Ala Ser Gly
225                 230                 235                 240
Asp Asp Val Asn Asp Ile Asp Leu Leu Ser Arg Gly Asp Phe Lys Ile
                245                 250                 255
Val Ile Gln Thr Ala Pro Glu Glu Met His Gly Leu Ala Asp Phe Leu
            260                 265                 270
Ala Pro Pro Ala Lys Asp Leu Gly Ile Leu Ser Ala Trp Glu Ala Gly
        275                 280                 285
Glu Leu Arg Tyr Lys Gln Leu Val Asn Pro
    290                 295
<210>357
<211>161
<212>PRT
<213>Chlamydia trachomatis
<400>357
Asp Pro Ala Arg Lys Arg Ser Phe Met Leu Arg Leu Phe Gln His Ile
  1               5                  10                  15
Leu Cys Phe Leu Glu Glu Val Pro Ser Phe Val Asp Val Leu Gln Glu
             20                  25                  30
Leu Ser Phe Val Asn Glu Ala Phe Ser Gly Ser Met Arg Trp Glu Val
         35                  40                  45
Gly Lys Met Leu Gly Ser Leu Leu Leu Leu Leu Gly Ile Phe Gly Gly
     50                  55                  60
Gly Cys Leu Leu Phe Arg Arg Phe Leu Arg Ser Arg Gly His Leu Pro
 65                  70                  75                  80
Ser Gly Asn Ser Ser Ile Lys Ile Leu Asp Gln Arg Val Leu Ala Ser
                85                  90                  95
Lys Thr Ser Ile Tyr Val Ile Lys Val Ala Asn Lys Thr Leu Val Val
            100                 105                 110
Ala Glu Arg Gly Glu Arg Val Thr Leu Leu Ser Glu Phe Pro Pro Asn
        115                 120                 125
Thr Asp Leu Asn Glu Leu Ile Gln Lys Asp Gln Lys Lys Pro Ser Thr
    130                 135                 140
Ser Arg Gly Glu Met Leu Ser Gly Phe Leu Lys Gln Phe Lys Glu Lys
145                 150                 155                 160
Lys

<210>358
<211>135
<212>PRT
<213>Chlamydia trachomatis
<400>358
Val His Gly Ser Phe Arg Cys Arg Thr Ile Phe Arg Lys Leu Ser Ile
  1               5                  10                  15
Met Phe Gly Val Gly Ile Asp Ile Ile Glu Ile Asp Arg Ile Arg Lys
             20                  25                  30
Ser Tyr Gln Thr Tyr Gly Asp Arg Phe Leu Lys Lys Ile Phe Thr Glu
         35                  40                  45
Gly Glu Arg Val Tyr Cys Phe Ser Lys Ser Asn Pro Tyr Ala Ser Leu
     50                  55                  60
Ala Ala Arg Phe Ala Ala Lys Glu Ala Val Ala Lys Ala Leu Gly Thr
 65                  70                  75                  80
Gly Ile Gly Lys Leu Leu Lys Trp Lys Glu Ile Glu Met Arg Arg Asp
                85                  90                  95
Ser Arg Gln Pro Gln Val Val Val Pro Glu Ala Leu Leu Cys Ser Leu
            100                 105                 110
Gly Val Lys Arg Val Leu Leu Ser Val Ser His Ser Arg Glu Tyr Ala
        115                 120                 125
Thr Ala Val Ala Ile Ala Glu
```

130 135

<210>359
<211>183
<212>PRT
<213>Chlamydia trachomatis
<400>359

```
Val Leu Ala Lys Gly Arg Asn Thr Cys Ala Val Cys Asp Gly Ala Ser
 1               5                  10                  15
Pro Ile Phe Arg Asp Lys Asp Leu Phe Val Val Gly Gly Gly Asp Ser
            20                  25                  30
Ala Leu Glu Glu Ala Met Phe Leu Thr Arg Tyr Gly Lys Arg Val Phe
        35                  40                  45
Val Val His Arg Arg Asp Thr Leu Arg Ala Ser Lys Val Met Val Asn
    50                  55                  60
Lys Ala Gln Ala Asn Glu Lys Ile Phe Phe Leu Trp Asn Ser Glu Ile
65                  70                  75                  80
Val Lys Ile Ser Gly Asp Thr Leu Val Arg Ser Ile Asp Ile Tyr Asn
                85                  90                  95
Asn Val Asp Lys Thr Thr Thr Thr Met Glu Ala Ala Gly Val Phe Phe
            100                 105                 110
Ala Ile Gly His Gln Pro Asn Thr Ala Phe Leu Gly Gly Gln Val Ala
        115                 120                 125
Leu Asp Glu Asn Gly Tyr Ile Ile Thr Glu Lys Gly Ser Ser Arg Thr
    130                 135                 140
Ser Val Pro Gly Val Phe Ala Ala Gly Asp Val Gln Asp Lys Tyr Tyr
145                 150                 155                 160
Arg Gln Ala Ile Thr Ser Ala Gly Ser Gly Cys Met Ala Ala Leu Asp
                165                 170                 175
Val Glu Arg Phe Leu Glu Asn
            180
```

<210>360
<211>194
<212>PRT
<213>Chlamydia trachomatis
<400>360

```
Met Asn Val Val Cys Gly Lys Ser Arg Val Gly Tyr Ser Ser Phe Phe
 1               5                  10                  15
Cys Lys Ser Arg Glu Pro Phe Ser Cys Val Phe Lys Ala Leu Leu Ser
            20                  25                  30
Lys Phe Ile Leu Gly Val Leu Met Thr His Ala Lys Leu Val Ile Ile
        35                  40                  45
Gly Ser Gly Pro Ala Gly Tyr Thr Ala Ala Ile Tyr Ala Ser Arg Ala
    50                  55                  60
Leu Leu Thr Pro Val Leu Phe Glu Gly Phe Phe Ser Gly Ile Ala Gly
65                  70                  75                  80
Gly Gln Leu Met Thr Thr Thr Glu Val Glu Asn Phe Pro Gly Phe Pro
                85                  90                  95
Glu Gly Val Leu Gly His Gln Leu Met Asp Leu Met Lys Thr Gln Ala
            100                 105                 110
Gln Arg Phe Gly Thr Gln Val Leu Ser Lys Asp Ile Thr Ala Val Asp
        115                 120                 125
Phe Ser Val Arg Pro Phe Val Leu Lys Ser Gly Glu Glu Thr Phe Thr
    130                 135                 140
Cys Asp Ala Cys Ile Ile Ala Thr Gly Ala Ser Ala Lys Arg Leu Ser
145                 150                 155                 160
Ile Pro Gly Ala Gly Asp Asn Glu Phe Trp Gln Lys Gly Val Thr Leu
                165                 170                 175
Ala Leu Phe Val Thr Glu Pro Leu Pro Phe Phe Val Thr Lys Ile Cys
            180                 185                 190
Leu Leu
```

<210>361
<211>569
<212>PRT
<213>Chlamydia trachomatis
<400>361

```
Met Pro Lys Gln Ala Asp Tyr Thr Trp Gly Ala Lys Lys Asn Leu Asp
  1               5                  10                  15
Thr Ile Ala Cys Leu Pro Glu Asp Val Lys Gln Phe Lys Asp Leu Leu
            20                  25                  30
Tyr Ala Ile His Gly Phe Thr Ala Thr Glu Glu Glu Pro Thr Ser Glu
        35                  40                  45
Val His Pro Gly Ala Ile Leu Lys Gly Thr Val Val Asp Ile Ser Lys
    50                  55                  60
Asp Phe Val Val Val Asp Val Gly Leu Lys Ser Glu Gly Val Ile Pro
65                  70                  75                  80
Met Ser Glu Phe Ile Asp Ser Ser Glu Gly Leu Thr Val Gly Ala Glu
                85                  90                  95
Val Glu Val Tyr Leu Asp Gln Thr Glu Asp Asp Glu Gly Lys Val Val
            100                 105                 110
Leu Ser Arg Glu Lys Ala Thr Arg Gln Arg Gln Trp Glu Tyr Ile Leu
        115                 120                 125
Ala His Cys Glu Glu Gly Ser Ile Val Lys Gly Gln Ile Thr Arg Lys
    130                 135                 140
Val Lys Gly Gly Leu Ile Val Asp Ile Gly Met Glu Ala Phe Leu Pro
145                 150                 155                 160
Gly Ser Gln Ile Asp Asn Lys Lys Ile Lys Asn Leu Asp Asp Tyr Val
                165                 170                 175
Gly Lys Val Cys Glu Phe Lys Ile Leu Lys Ile Asn Val Asp Arg Arg
            180                 185                 190
Asn Val Val Val Ser Arg Arg Glu Leu Leu Glu Ala Glu Arg Ile Ser
        195                 200                 205
Lys Lys Ala Glu Leu Ile Glu Gln Ile Thr Ile Gly Glu Arg Arg Lys
    210                 215                 220
Gly Ile Val Lys Asn Ile Thr Asp Phe Gly Val Phe Leu Asp Leu Asp
225                 230                 235                 240
Gly Ile Asp Gly Leu Leu His Ile Thr Asp Met Thr Trp Lys Arg Ile
                245                 250                 255
Arg His Pro Ser Glu Met Val Glu Leu Asn Gln Glu Leu Glu Val Ile
            260                 265                 270
Ile Leu Ser Val Asp Lys Glu Lys Gly Arg Val Ala Leu Gly Leu Lys
        275                 280                 285
Gln Lys Glu His Asn Pro Trp Glu Asp Ile Glu Lys Lys Tyr Pro Pro
    290                 295                 300
Gly Lys Arg Val Arg Gly Lys Ile Val Lys Leu Leu Pro Tyr Gly Ala
305                 310                 315                 320
Phe Ile Glu Ile Glu Glu Gly Ile Glu Gly Leu Ile His Val Ser Glu
                325                 330                 335
Met Ser Trp Val Lys Asn Ile Val Asp Pro Asn Glu Val Val Asn Lys
            340                 345                 350
Gly Asp Glu Val Glu Val Val Val Leu Ser Ile Gln Lys Asp Glu Gly
        355                 360                 365
Lys Ile Ser Leu Gly Leu Lys Gln Thr Lys His Asn Pro Trp Asp Asn
    370                 375                 380
Ile Glu Glu Lys Tyr Pro Ile Gly Leu Arg Val Thr Ala Glu Ile Lys
385                 390                 395                 400
Asn Leu Thr Asn Tyr Gly Ala Phe Val Glu Leu Glu Pro Gly Ile Glu
                405                 410                 415
Gly Leu Ile His Ile Ser Asp Met Ser Trp Ile Lys Lys Val Ser His
            420                 425                 430
Pro Ser Glu Leu Phe Lys Lys Gly Asn Thr Val Glu Ala Val Ile Leu
        435                 440                 445
```

Ser Val Asp Lys Glu Ser Lys Lys Ile Thr Leu Gly Val Lys Gln Leu
450 455 460
Thr Pro Asn Pro Trp Asp Glu Ile Glu Ala Met Phe Pro Val Gly Ser
465 470 475 480
Asp Ile Ser Gly Val Val Thr Lys Ile Thr Ala Phe Gly Ala Phe Val
485 490 495
Glu Leu Gln Asn Gly Ile Glu Gly Leu Ile His Val Ser Glu Leu Ser
500 505 510
Glu Lys Pro Phe Ala Lys Ile Glu Asp Val Leu Ser Ile Gly Asp Lys
515 520 525
Val Ser Ala Lys Val Ile Lys Leu Asp Pro Asp His Lys Lys Val Ser
530 535 540
Leu Ser Ile Lys Glu Phe Leu Ala His Gly Gly Asp Ala Gly His Asp
545 550 555 560
Ala Glu Glu Glu Ser Ser Asp Arg Asp
565

<210>362
<211>226
<212>PRT
<213>Chlamydia trachomatis
<400>362
Val Lys Ser Lys His Lys Ser Arg Ala Leu Gly Leu Cys Ser Val Ser
1 5 10 15
Ile Ile Phe Phe Ala Phe Phe Pro Leu Pro Ile Arg Gly Val Leu Met
20 25 30
Asn Lys Asp Leu Val Ala Ile Phe Asp Tyr Met Glu Arg Glu Lys Gly
35 40 45
Ile Gln Arg Ser Thr Ile Val Gly Ala Ile Glu Ser Ala Leu Lys Ile
50 55 60
Ala Ala Lys Lys Thr Leu Arg Asp Asp Ala Asn Val Ser Val Ser Ile
65 70 75 80
Asn Pro Arg Thr Gly Asp Ile Glu Val Phe Cys Glu Lys Gln Ile Val
85 90 95
Glu Lys Cys Gln Asn Pro Ser Lys Glu Ile Pro Leu Asp Lys Ala Arg
100 105 110
Glu Tyr Asp Pro Asp Cys Gln Ile Gly Gln Tyr Met Asp Val Pro Phe
115 120 125
Ile Ser Asp Gln Phe Gly Arg Ile Ala Ala His Ala Ala Arg Gln Ile
130 135 140
Ile Gly Gln Lys Leu Arg His Ala Glu Arg Asp Val Ile Tyr Glu Glu
145 150 155 160
Tyr Arg His Arg Lys Asn Glu Ile Ile Ser Gly Val Val Lys Ser Phe
165 170 175
Ala Arg Gly Ala Asn Leu Val Val Asp Leu Gly Lys Val Glu Gly Leu
180 185 190
Leu Pro Ala Arg Phe Tyr Pro Lys Thr Glu Lys His Lys Val Gly Asp
195 200 205
Lys Ile Tyr Ala Leu Leu Tyr Glu Tyr Arg Asn Leu Lys Met Val Glu
210 215 220
Leu Lys
225

<210>363
<211>256
<212>PRT
<213>Chlamydia trachomatis
<400>363
Asp Leu Cys Ala Ser Leu Arg Val Gln Glu Ser Glu Asn Gly Gly Ala
1 5 10 15
Glu Val Ile Leu Ser Arg Ser His Pro Glu Phe Val Lys Gln Leu Phe
20 25 30
Val Gln Glu Val Pro Glu Leu Glu Glu Gly Ser Val Glu Ile Val Lys

```
          35                  40                  45
Ile Ala Arg Glu Ala Gly Tyr Arg Thr Lys Met Ala Val Arg Ser Ser
      50                  55                  60
Asp Pro Gln Thr Asp Ala Val Gly Ala Phe Val Gly Met Arg Gly Ser
 65                  70                  75                  80
Arg Ile Lys Asn Ile Ile Arg Glu Leu Asn Asp Glu Lys Ile Asp Val
                 85                  90                  95
Val Asn Tyr Ser Pro Val Ser Thr Glu Leu Leu Gln Asn Leu Leu Tyr
            100                 105                 110
Pro Val Glu Ile Gln Lys Ile Ala Ile Leu Glu Asp Asp Lys Val Ile
        115                 120                 125
Ala Ile Ile Val Gln Asp Ser Asp Tyr Ala Thr Val Ile Gly Lys Arg
    130                 135                 140
Gly Ile Asn Ala Arg Leu Ile Ser Gln Ile Leu Gly Tyr Glu Leu Glu
145                 150                 155                 160
Val Gln Arg Met Ser Glu Tyr Asn Lys Leu Leu Glu Ile Gln Arg Leu
                165                 170                 175
Gln Leu Ala Glu Phe Glu Asp Pro Arg Leu Asp Gln Pro Leu Glu Val
            180                 185                 190
Glu Gly Ile Asn Thr Leu Ile Val Gln Asn Leu Glu His Ala Gly Tyr
        195                 200                 205
Asp Thr Ile Arg Lys Ile Leu Leu Ala Ser Ala Ser Glu Leu Ala Ser
    210                 215                 220
Val Pro Gly Ile Ser Leu Glu Leu Ala Tyr Lys Ile Leu Glu Gln Val
225                 230                 235                 240
Ser Lys Tyr Gly Glu Gly Lys Val Asp Glu Lys Pro Gln Val Glu Asp
                245                 250                 255

<210>364
<211>903
<212>PRT
<213>Chlamydia trachomatis
<400>364
Leu Asn Arg Ser Ala Asn Met Glu Lys Ala Lys Leu Thr Lys Asn Leu
  1                 5                  10                  15
Lys Xaa Lys Ile Lys Asn Ala Gln Leu Thr Lys Ala Xaa Gly Leu Asp
             20                  25                  30
Lys Leu Lys Gln Lys Leu Ala Gln Ala Gly Ser Ser Asp Thr Lys Asn
         35                  40                  45
Ser Pro Ala Ser Lys Ala Gln Thr Lys Glu Lys Ser Ser Lys Lys Thr
     50                  55                  60
Ala Gly Thr Pro Ala Pro Ala Pro Glu Val Asp Leu Gly Ala Thr Glu
 65                  70                  75                  80
Ser Thr Ala Arg Arg Ile Arg Ala Lys Asp Arg Ser Ser Phe Ala Ala
                 85                  90                  95
Glu Pro Thr Val Thr Thr Ala Leu Pro Gly Asp Ala Ser His Leu Thr
            100                 105                 110
Leu Asp Ala Ile Pro Ala Ile Lys Ala Pro Glu Ile Thr Ser Val Thr
        115                 120                 125
Gln Lys Glu Gln Thr Leu Arg Glu Cys Thr Asp Thr Ser Ser Val Gln
    130                 135                 140
Gln Glu Glu Lys Lys Glu Ser Ser Glu Glu Thr Ser Pro Glu Thr Pro
145                 150                 155                 160
Glu Arg Ile Glu Glu Thr Pro Ile Ile Arg Thr Arg Thr Glu Pro Lys
                165                 170                 175
Ser Val Val Ser Ile Lys Pro Lys Phe Gly Pro Thr Gly Lys His Ile
            180                 185                 190
Asn His Leu Leu Ala Lys Thr Phe Lys Ala Pro Ala Lys Glu Thr Lys
        195                 200                 205
Ala Ala Ser Thr Glu Glu Thr Thr Gln Gln Gln Pro Arg Gln Asn Asp
    210                 215                 220
Ala Ala Ser His Asn Asn Lys Gln Gln Pro Ser Gly Thr Ser Ser Arg
```

```
225                 230                 235                 240
Pro Ala Ser Ser Ala Pro Ser Tyr Arg Arg Glu Ser Thr Ser Asn Asn
                245                 250                 255
Asn Asn Asn Ala Lys Arg Gly Ser Glu Arg Asp Arg Ser Lys Arg Ser
            260                 265                 270
Asp Glu Ser Val Lys Ala Phe Thr Gly Arg Asp Arg Tyr Gly Leu Asn
        275                 280                 285
Glu Gly Ser Ser Glu Glu Asp Lys Trp Arg Lys Lys Arg Val His Lys
    290                 295                 300
Thr Lys Lys Gln Ala Glu Glu His Val Val Gln Cys Pro Ala His Ile
305                 310                 315                 320
Lys Ile Ala Leu Pro Ile Thr Val Lys Asp Leu Ala Ala Glu Met Lys
                325                 330                 335
Leu Lys Ala Ser Glu Leu Ile Gln Lys Leu Phe Ile His Gly Met Thr
            340                 345                 350
Tyr Val Val Asn Asp Val Leu Asp Ser Gln Thr Val Val Glu Tyr Ile
        355                 360                 365
Gly Leu Glu Phe Gly Cys Thr Ile Glu Ile Asp Ser Ser Ala Lys Glu
    370                 375                 380
Lys Leu Cys Leu Val Glu Asn Thr Val Arg Asp Glu Val Asn Ala Thr
385                 390                 395                 400
Asp Pro Glu Lys Leu Ile Ile Arg Ser Pro Ile Val Ala Phe Met Gly
                405                 410                 415
His Val Asp His Gly Lys Thr Thr Ile Ile Asp Ala Leu Arg Gln Ser
            420                 425                 430
Asn Met Ala Ala Ser Glu Ala Gly Ala Ile Thr Gln His Thr Gly Ala
        435                 440                 445
Phe Lys Cys Thr Thr Pro Val Gly Glu Ile Thr Val Leu Asp Thr Pro
    450                 455                 460
Gly His Glu Ala Phe Ser Ala Met Arg Ala Arg Gly Ala Glu Val Cys
465                 470                 475                 480
Asp Ile Val Val Leu Val Val Ala Gly Asp Glu Gly Ile Lys Glu Gln
                485                 490                 495
Thr Ile Glu Ala Ile Glu His Ala Lys Gly Ala Asn Ile Thr Ile Val
            500                 505                 510
Val Ala Ile Asn Lys Cys Asp Lys Pro Lys Leu Gln Cys Arg Asn Ser
        515                 520                 525
Val Pro Ser Val Ser Arg Ile Arg Ser Leu Leu Pro Glu Ala Trp Gly
    530                 535                 540
Gly Ser Ile Ala Thr Ile Asn Thr Ser Ala Lys Thr Gly Glu Gly Leu
545                 550                 555                 560
Gln Asp Leu Leu Glu Met Leu Ala Leu Gln Ala Glu Val Leu Glu Leu
                565                 570                 575
Lys Ala Asp Pro Ser Ala Arg Ala Arg Gly Leu Val Ile Glu Ser Glu
            580                 585                 590
Leu His Lys Gly Leu Gly Ala Val Ala Thr Val Leu Val Gln Asn Gly
        595                 600                 605
Thr Leu His Leu Gly Glu Ala Leu Val Phe Asn Asp Cys Tyr Gly Lys
    610                 615                 620
Val Lys Thr Met His Asp Glu His Asn Gln Leu Leu Gln Ser Ala Thr
625                 630                 635                 640
Pro Ser Thr Pro Val Leu Ile Thr Gly Leu Ser Ala Ile Pro Lys Ala
                645                 650                 655
Gly Asp Pro Phe Ile Val Val Lys Asn Glu Lys Val Ala Lys Glu Ile
            660                 665                 670
Ile Ser Ala Arg Leu Ala Gly Gln Gln Arg Ser Ala Ala Leu Gln Lys
        675                 680                 685
Lys Arg Pro Asn Phe Asp Ala Val Leu Gln Asn Lys Lys Thr Leu Lys
    690                 695                 700
Leu Ile Ile Lys Ala Asp Val Gln Gly Ser Ile Glu Ala Leu Ala His
705                 710                 715                 720
```

Ser Ile Leu Asn Ile Arg Ser Glu Lys Val Asp Val Glu Ile Leu Ser
725 730 735
Ser Gly Val Gly Asp Ile Ser Glu Ser Asp Ile Arg Leu Ala Ser Ala
740 745 750
Ser Lys Ala Thr Val Ile Gly Phe His Thr Ser Val Glu Ser His Ala
755 760 765
Glu Pro Leu Ile Lys Asn Leu Asn Val Lys Val Cys Leu Phe Asp Ile
770 775 780
Ile Tyr His Ala Val Asp Ala Ile Lys Glu Ile Met Thr Gly Leu Leu
785 790 795 800
Asp Pro Ile Ala Glu Glu Lys Asn Leu Gly Ala Ala Glu Ile Lys Ala
805 810 815
Thr Phe Lys Ser Ser Gln Leu Gly Thr Ile Tyr Gly Cys Leu Val Thr
820 825 830
Glu Gly Thr Val Val Arg Asn Gln Lys Ile Arg Ile Ile Arg Asp Lys
835 840 845
Glu Val Leu Trp Lys Gly Ser Leu Ser Ser Leu Lys Arg Leu Lys Glu
850 855 860
Asp Val Lys Glu Val Lys Lys Gly Met Glu Cys Gly Ile Leu Leu Asp
865 870 875 880
Asn Tyr Gln Gln Ala Gln Val Gly Asp Ile Leu Gln Cys Tyr Glu Val
885 890 895
Ile Tyr His Pro Gln Thr Leu
900

<210>365
<211>123
<212>PRT
<213>Chlamydia trachomatis
<400>365
Met Ala Glu Asn Arg Arg Met Lys Lys Val Asn Ala Met Leu Arg Glu
1 5 10 15
Ala Ile Ala Lys Val Ile Leu Lys Asp Val Lys His Pro Lys Ile Ser
20 25 30
Asn Arg Trp Ile Thr Ile Thr Arg Val Ser Leu Ser Arg Asp Leu Gln
35 40 45
Ser Ala Cys Val Tyr Val Ser Ile Met Pro His Glu Asn Ser Gln Glu
50 55 60
Glu Thr Leu Ala Ala Leu Lys Ala Ser Ala Gly Phe Ile Ala Phe Gln
65 70 75 80
Ala Ser Lys Asp Leu Val Leu Lys Tyr Phe Pro Asp Leu Asn Phe Tyr
85 90 95
Val Glu Asp Ile Phe Ser Pro Gln Asp His Ile Glu Ser Leu Leu Leu
100 105 110
Lys Ile Ala Glu Gln Asp Lys Lys Thr Asn Pro
115 120

<210>366
<211>241
<212>PRT
<213>Chlamydia trachomatis
<400>366
Met Glu Leu Ala Thr Glu Ser Ile Glu Gly Val Leu Leu Val Asp Lys
1 5 10 15
Pro Gln Gly Arg Thr Ser Phe Ser Leu Ile Arg Ser Leu Val Arg Leu
20 25 30
Ile Gly Val Lys Lys Ile Gly His Ala Gly Thr Leu Asp Pro Phe Ala
35 40 45
Thr Gly Val Met Val Met Leu Ile Gly Arg Lys Phe Thr Arg Leu Ser
50 55 60
Asp Ile Met Leu Phe Glu Asp Lys Glu Tyr Ala Ala Val Ala His Leu
65 70 75 80
Gly Thr Thr Thr Asp Thr Tyr Asp Cys Asp Gly Lys Ile Val Gly Arg

```
                85                  90                  95
Ser Lys Lys Val Pro Thr Met Asp Glu Val Leu Thr Cys Thr Ser Tyr
            100                 105                 110
Phe Gln Gly Glu Ile Gln Gln Val Pro Pro Met Phe Ser Ala Lys Lys
        115                 120                 125
Val Gln Gly Lys Lys Leu Tyr Glu Tyr Ala Arg Gln Gly Leu Ser Ile
    130                 135                 140
Glu Arg Arg Phe Ala Thr Val Thr Val Asn Leu Arg Leu Val Lys Tyr
145                 150                 155                 160
Glu Tyr Pro Arg Leu His Phe Val Val Gln Cys Ser Lys Gly Thr Tyr
                165                 170                 175
Ile Arg Ser Ile Ala His Glu Leu Gly Asn Met Leu Gly Cys Gly Ala
            180                 185                 190
Tyr Leu Glu Glu Leu Arg Arg Leu Arg Ser Gly Ser Phe Ser Ile Asp
        195                 200                 205
Gln Cys Ile Asp Gly Asn Leu Leu Asp Glu Pro Glu Phe Asn Val Ser
    210                 215                 220
Pro Tyr Leu Arg Asp Ala Asn Gly Leu Ile Leu Gln Pro Ala Pro Val
225                 230                 235                 240
Leu
```

<210>367
<211>307
<212>PRT
<213>Chlamydia trachomatis
<400>367

```
Met Tyr Leu Leu Ile Tyr Val Met Gln Met Asp Leu Phe Tyr Ser Leu
  1                 5                  10                  15
Leu Pro Ser Ser Asn Pro Ile Glu Ser Val Thr Ile Gly Phe Phe Asp
             20                  25                  30
Gly Cys Xaa Leu Xaa His Gln Ala Leu Leu Ser Phe Leu Thr Lys Phe
         35                  40                  45
Pro Gly Lys Ser Gly Val Ile Thr Phe Ser Gln His Pro Glu His Thr
     50                  55                  60
Leu Ser Asn Ser Pro Pro Glu Thr Ile Thr Ser Leu Glu Glu Arg Ile
 65                  70                  75                  80
Gln Leu Leu Ala Gly Cys Gly Ile Asp Tyr Leu Ala Val Leu Pro Phe
                 85                  90                  95
Asn Gln Glu Ile Ala Asn Gln Glu Ala Glu Leu Phe Ile Gln Ser Ile
            100                 105                 110
Tyr Lys Thr Leu His Pro Ser Arg Ile Val Leu Gly Tyr Asp Ser Arg
        115                 120                 125
Leu Gly Lys Gly Gly Leu Gly Thr Ala Gln Thr Leu Arg Pro Phe Ala
    130                 135                 140
Ala Ser Leu Gly Ile Ser Leu Glu Glu Val Pro Pro Leu Gln Ile Glu
145                 150                 155                 160
Gly Thr Ile Val Ser Ser Arg Lys Ile Arg Gln Phe Leu Arg Glu Lys
                165                 170                 175
Asp Leu Cys Ser Ala Glu Lys Phe Leu Gly Arg Pro Phe Ala Tyr Thr
            180                 185                 190
Gly Lys Val Ala His Gly Arg Gly Ile Gly Thr Ser Phe Gly Tyr Ala
        195                 200                 205
Thr Ile Asn Leu Pro Leu Thr His Ser Leu Leu Pro Leu Gly Val Tyr
    210                 215                 220
Thr Cys Thr Ile Val Ile Glu Gly Phe Ser Tyr Ala Gly Val Met Asn
225                 230                 235                 240
Leu Gly Met Ala Pro Thr Met Gln Arg His Gln Leu Cys Leu Glu Ala
                245                 250                 255
His Ile Leu Asp Phe Ser Glu Asp Leu Tyr Asp Lys Ser Ile Thr Val
            260                 265                 270
Ile Leu Glu Gln Phe Leu Arg Glu Glu Lys Leu Phe Ser Ser Lys Asp
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        275                 280                 285
Glu Leu Val Leu Ala Ile Gln Glu Asp Ile Arg Gln Ala Arg Leu Asn
    290                 295                 300
Lys Asn Arg
305
<210>368
<211>348
<212>PRT
<213>Chlamydia trachomatis
<400>368
Met Lys Met Gly Gln Thr Glu Cys Gly Ile Val Gly Leu Pro Asn Val
  1               5                  10                  15
Gly Lys Ser Gly Leu Phe Asn Ala Leu Thr Gly Ala Gln Val Ala Ser
            20                  25                  30
Cys Asn Tyr Pro Phe Cys Thr Ile Asp Pro Asn Val Gly Ile Val Pro
        35                  40                  45
Val Ile Asp Pro Arg Leu Glu Thr Leu Ala Arg Ile Ser Gln Ser Gln
    50                  55                  60
Lys Ile Ile Tyr Ala Asp Met Lys Phe Val Asp Ile Ala Gly Leu Val
65                  70                  75                  80
Lys Gly Ala Ala Ser Gly Ala Gly Leu Gly Asn Arg Phe Leu Ser His
                85                  90                  95
Ile Arg Glu Thr His Ala Ile Ala His Val Val Arg Cys Phe Asp Asn
            100                 105                 110
Asp Asp Ile Thr His Val Ser Gly Lys Ile Asp Pro Glu Glu Asp Ile
        115                 120                 125
Ala Val Ile Asn Leu Glu Leu Val Leu Ala Asp Phe Ser Ser Ala Thr
    130                 135                 140
Ser Val Arg Glu Lys Leu Gly Lys Gln Ala Lys Gly Lys Lys Asp Ile
145                 150                 155                 160
Gly Gln Leu Leu Pro Leu Leu Asp Arg Val Val Asp His Leu Glu Ser
                165                 170                 175
Gly Asn Pro Val Arg Thr Leu Ser Leu Ser Leu Glu Glu Lys Val Leu
            180                 185                 190
Leu Lys Pro Tyr Pro Phe Leu Thr Gly Lys Pro Met Leu Tyr Ile Ala
        195                 200                 205
Asn Ile Asp Glu Asp Ser Leu Thr Asp Leu Asp Asn Pro Tyr Val Gln
    210                 215                 220
Lys Val Arg Glu Ile Ala Lys Arg Glu Glu Ala Asn Val Val Pro Ile
225                 230                 235                 240
Cys Val Lys Leu Glu Glu Glu Ile Leu Ser Leu Pro Leu Glu Glu Arg
                245                 250                 255
Gln Asp Phe Leu His Ser Leu Gly Leu Gln Glu Ser Gly Leu Asn Arg
            260                 265                 270
Leu Val Ala Ser Ala Tyr His Thr Leu Gly Leu Ile Ser Tyr Phe Thr
        275                 280                 285
Thr Gly Pro Gln Glu Thr Arg Ala Trp Thr Ile Ser Lys Gly Val Thr
    290                 295                 300
Ala Ala Glu Ala Ala Gly Glu Ile His Ser Asp Ile Gln Arg Gly Phe
305                 310                 315                 320
Ile Arg Ala Glu Val Val Thr Met Glu Asp Ile Val Ala Tyr Asp Gly
                325                 330                 335
Arg Ala Gly Ala Arg Glu Ala Gly Lys Leu Arg Ala
            340                 345
<210>369
<211>360
<212>PRT
<213>Chlamydia trachomatis
<400>369
Met Gly Glu Lys Thr Glu Lys Ala Thr Pro Lys Arg Leu Arg Asp Ala
  1               5                  10                  15
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2005214700 - 14 Jul 2005

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Arg Lys Lys Gly Gln Val Ala Lys Ser Gln Asp Phe Pro Ser Ala Ile
            20                  25                  30
Thr Phe Ile Val Ser Met Phe Leu Thr Phe Ser Leu Ala Ser Phe Phe
        35                  40                  45
Ala Glu His Leu Gly Ser Phe Leu Val Ser Ile Phe Lys Thr Ala Pro
    50                  55                  60
Gln Asn His Asp Pro His Leu Ala Ile Tyr Tyr Leu Lys Asn Cys Leu
65                  70                  75                  80
Ile Leu Ile Leu Thr Val Ser Leu Pro Leu Leu Gly Ala Val Gly Phe
                85                  90                  95
Val Gly Leu Leu Ile Gly Phe Leu Ile Val Gly Pro Thr Phe Ser Thr
            100                 105                 110
Glu Val Phe Lys Pro Asp Leu Lys Lys Phe Asn Pro Ile Asp Asn Leu
        115                 120                 125
Lys Gln Lys Phe Lys Val Lys Thr Phe Ile Glu Leu Leu Lys Ser Ile
    130                 135                 140
Phe Lys Ile Ser Gly Ala Ala Leu Ile Leu Tyr Ile Val Leu Lys Asn
145                 150                 155                 160
Arg Val Glu Leu Val Ile Glu Thr Ala Gly Val Pro Pro Leu Val Thr
                165                 170                 175
Ala Gln Val Phe Lys Glu Ile Leu Tyr Lys Ala Val Thr Ser Ile Gly
            180                 185                 190
Leu Phe Phe Leu Val Val Ala Val Ile Asp Leu Val Tyr Gln Arg His
        195                 200                 205
Ser Phe Ala Lys Glu Leu Lys Met Glu Lys Phe Glu Val Lys Gln Glu
    210                 215                 220
Phe Lys Asp Thr Glu Gly Asn Pro Glu Ile Lys Gly Arg Arg Arg Gln
225                 230                 235                 240
Ile Ala Gln Glu Ile Ala Tyr Glu Asp Thr Ser Ser Gln Ile Lys His
                245                 250                 255
Ala Ser Ala Val Val Ser Asn Pro Lys Asp Ile Ala Val Ala Ile Gly
            260                 265                 270
Tyr Met Pro Glu Lys Tyr Lys Ala Pro Trp Ile Ile Ala Met Gly Val
        275                 280                 285
Asn Leu Arg Ala Lys Arg Ile Ile Ala Glu Ala Glu Lys Tyr Gly Val
    290                 295                 300
Pro Ile Met Arg Asn Val Pro Leu Ala His Gln Leu Leu Asp Glu Gly
305                 310                 315                 320
Lys Glu Leu Lys Phe Ile Pro Glu Thr Thr Tyr Glu Ala Val Gly Glu
                325                 330                 335
Ile Leu Leu Tyr Ile Thr Ser Leu Asn Ala Gln Asn Leu Glu Asn Lys
            340                 345                 350
Asn Ile Asn Gln Phe Asp Asn Leu
        355                 360
<210>370
<211>130
<212>PRT
<213>Chlamydia trachomatis
<400>370
Met Asn Lys Leu Leu Asn Phe Val Ser Arg Thr Phe Gly Gly Asp Ala
  1                 5                  10                  15
Ala Leu Asn Met Ile Asn Lys Ser Ser Asp Leu Ile Leu Ala Met Trp
            20                  25                  30
Met Leu Gly Val Val Leu Met Ile Ile Leu Pro Leu Pro Pro Ala Met
        35                  40                  45
Val Asp Phe Met Ile Thr Ile Asn Leu Ala Ile Ser Val Phe Leu Leu
    50                  55                  60
Met Val Ala Leu Tyr Ile Pro Ser Ala Leu Gln Leu Ser Val Phe Pro
65                  70                  75                  80
Ser Leu Leu Leu Ile Thr Thr Met Phe Arg Leu Gly Ile Asn Ile Ser
                85                  90                  95
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Ser Ser Arg Gln Ile Leu Leu His Ala Tyr Ala Gly His Val Ile Gln
            100                 105                 110
Ala Ser Glu Thr Ser Ser Leu Glu Glu Thr Met Ser Leu Asp Leu Leu
        115                 120                 125
Ser Ser
    130
<210>371
<211>614
<212>PRT
<213>Chlamydia trachomatis
<400>371
His Phe Phe Leu Pro Thr Asn Ser Pro Ser Cys Leu Cys Trp Ser Arg
  1               5                  10                  15
Asp Pro Ser Phe Gly Asp Phe Val Val Gly Gly Asn Tyr Val Val Gly
             20                  25                  30
Phe Ile Ile Phe Leu Ile Ile Thr Ile Ile Gln Phe Ile Val Val Thr
         35                  40                  45
Lys Gly Ala Glu Arg Val Ala Glu Val Ala Ala Arg Phe Arg Leu Asp
     50                  55                  60
Ala Met Pro Gly Lys Gln Met Ala Ile Asp Ala Asp Leu Arg Ala Gly
 65                  70                  75                  80
Met Ile Asp Ala Thr Gln Ala Arg Asp Lys Arg Ser Gln Ile Gln Lys
                 85                  90                  95
Glu Ser Glu Leu Tyr Gly Ala Met Asp Gly Ala Met Lys Phe Ile Lys
            100                 105                 110
Gly Asp Val Ile Ala Gly Ile Val Ile Ser Leu Ile Asn Ile Val Gly
        115                 120                 125
Gly Leu Val Ile Gly Val Thr Met Lys Gly Met Thr Met Ala Gln Ala
    130                 135                 140
Ala His Ile Tyr Thr Leu Ile Thr Ile Gly Asp Gly Leu Val Ser Gln
145                 150                 155                 160
Ile Pro Ser Leu Leu Ile Ser Leu Thr Ala Gly Ile Val Thr Thr Arg
                165                 170                 175
Val Ser Ser Asp Lys Asp Thr Asn Leu Gly Lys Glu Ile Ser Ser Gln
            180                 185                 190
Leu Val Lys Glu Pro Arg Ala Leu Leu Leu Ser Ala Gly Ala Thr Leu
        195                 200                 205
Gly Ile Gly Phe Phe Lys Gly Phe Pro Leu Trp Ser Phe Ala Leu Met
    210                 215                 220
Ala Val Leu Phe Ala Val Leu Gly Ile Leu Leu Ile Thr Lys Lys Asn
225                 230                 235                 240
Ser Pro Gly Lys Lys Gly Gly Ala Ser Ser Thr Thr Thr Val Gly Ala
                245                 250                 255
Ala Asp Gly Ala Ala Ala Ser Gly Glu Asn Ser Asp Asp Tyr Ala Leu
            260                 265                 270
Thr Leu Pro Val Ile Leu Glu Leu Gly Lys Asp Leu Ser Lys Leu Ile
        275                 280                 285
Gln Gln Arg Thr Lys Ser Gly Gln Ser Phe Val Asp Asp Met Ile Pro
    290                 295                 300
Lys Met Arg Gln Ala Leu Tyr Gln Asp Ile Gly Ile Arg Tyr Pro Gly
305                 310                 315                 320
Ile His Val Arg Thr Asp Ser Pro Ser Leu Glu Gly Asn Asp Tyr Met
                325                 330                 335
Ile Leu Leu Asn Glu Val Pro Tyr Val Arg Gly Lys Ile Pro Pro Asn
            340                 345                 350
His Val Leu Thr Asn Glu Val Glu Glu Asn Leu Ser Arg Tyr Asn Leu
        355                 360                 365
Pro Phe Ile Thr Tyr Lys Asn Ala Ala Gly Leu Pro Ser Thr Trp Val
    370                 375                 380
Ser Thr Asp Ala Leu Thr Ile Leu Glu Lys Ala Ala Ile Lys Tyr Trp
385                 390                 395                 400
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US 2005/0064409 A1

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Ser Pro Leu Glu Val Ile Ile Leu His Leu Ser Tyr Phe Phe His Arg
                405                 410                 415
Asn Ser Gln Glu Phe Leu Gly Ile Gln Glu Val Arg Ser Met Ile Glu
            420                 425                 430
Phe Met Glu Arg Ser Phe Pro Asp Leu Val Lys Glu Val Thr Arg Leu
        435                 440                 445
Ile Pro Leu Gln Lys Leu Thr Glu Ile Phe Lys Arg Leu Val Gln Glu
    450                 455                 460
Gln Ile Ser Ile Lys Asp Leu Arg Thr Ile Leu Glu Ser Leu Ser Glu
465                 470                 475                 480
Trp Ala Gln Thr Glu Lys Asp Thr Val Leu Leu Thr Glu Tyr Val Arg
                485                 490                 495
Ser Ser Leu Lys Leu Tyr Ile Ser Phe Lys Phe Ser Gln Gly Gln Ser
            500                 505                 510
Ala Ile Ser Val Tyr Leu Leu Asp Pro Glu Ile Glu Glu Met Ile Arg
        515                 520                 525
Gly Ala Ile Lys Gln Thr Ser Ala Gly Ser Tyr Leu Ala Leu Asp Pro
    530                 535                 540
Asp Ser Val Asn Leu Ile Leu Lys Ser Met Arg Met Thr Ile Thr Pro
545                 550                 555                 560
Thr Pro Pro Gly Gly Gln Pro Pro Val Leu Leu Thr Ala Ile Asp Val
                565                 570                 575
Arg Arg Tyr Val Arg Lys Leu Ile Glu Thr Glu Phe Pro Asp Ile Ala
            580                 585                 590
Val Ile Ser Tyr Gln Glu Val Leu Pro Glu Ile Arg Ile Gln Pro Leu
        595                 600                 605
Gly Arg Ile Gln Ile Phe
    610
<210>372
<211>421
<212>PRT
<213>Chlamydia trachomatis
<400>372
Met Thr Ala Ser Gly Gly Ala Gly Gly Leu Gly Ser Thr Gln Thr Val
  1                 5                  10                  15
Asp Val Ala Arg Ala Gln Ala Ala Ala Ala Thr Gln Asp Ala Gln Glu
             20                  25                  30
Val Ile Gly Ser Gln Glu Ala Ser Glu Ala Ser Met Leu Lys Glu Cys
         35                  40                  45
Glu Asp Leu Ile Asn Pro Ala Ala Ala Thr Arg Ile Xaa Lys Lys Glu
     50                  55                  60
Glu Lys Phe Glu Ser Leu Glu Ala Arg Arg Lys Xaa Thr Ala Asp Lys
 65                  70                  75                  80
Ala Glu Lys Lys Ser Glu Ser Thr Glu Glu Lys Gly Asp Thr Pro Leu
                 85                  90                  95
Glu Asp Arg Phe Thr Glu Asp Leu Ser Glu Val Ser Gly Glu Asp Phe
            100                 105                 110
Arg Gly Leu Lys Asn Ser Phe Asp Asp Asp Ser Ser Ser Asp Glu Ile
        115                 120                 125
Leu Asp Ala Leu Thr Ser Lys Phe Ser Asp Pro Thr Ile Lys Asp Leu
    130                 135                 140
Ala Leu Asp Tyr Leu Ile Gln Ile Ala Pro Ser Asp Gly Lys Leu Lys
145                 150                 155                 160
Ser Ala Leu Ile Gln Ala Lys His Gln Leu Met Ser Gln Asn Pro Gln
                165                 170                 175
Ala Ile Val Gly Gly Arg Asn Val Leu Leu Ala Ser Glu Thr Phe Ala
            180                 185                 190
Ser Arg Ala Asn Thr Ser Pro Ser Ser Leu Arg Ser Leu Tyr Phe Gln
        195                 200                 205
Val Thr Ser Ser Pro Ser Asn Cys Ala Asn Leu His Gln Met Leu Ala
    210                 215                 220
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Ser Tyr Ser Pro Ser Glu Lys Thr Ala Val Met Glu Phe Leu Val Asn
225 230 235 240
Gly Met Val Ala Asp Leu Lys Ser Glu Gly Pro Ser Ile Pro Pro Ala
245 250 255
Lys Leu Gln Val Tyr Met Thr Glu Leu Ser Asn Leu Gln Ala Leu His
260 265 270
Ser Val Asp Ser Phe Phe Asp Arg Asn Ile Gly Asn Leu Glu Asn Ser
275 280 285
Leu Lys His Glu Gly His Ala Pro Ile Pro Ser Leu Thr Thr Gly Asn
290 295 300
Leu Thr Lys Thr Phe Leu Gln Leu Val Glu Asp Lys Phe Pro Ser Ser
305 310 315 320
Ser Lys Ala Gln Lys Ala Leu Asn Glu Leu Val Gly Pro Asp Thr Gly
325 330 335
Pro Gln Thr Glu Val Leu Asn Leu Phe Phe Arg Ala Leu Asn Gly Cys
340 345 350
Ser Pro Arg Ile Phe Ser Gly Ala Glu Lys Lys Gln Gln Leu Ala Ser
355 360 365
Val Ile Thr Asn Thr Leu Asp Ala Ile Asn Ala Asp Asn Glu Asp Tyr
370 375 380
Pro Lys Pro Gly Asp Phe Pro Arg Ser Ser Phe Ser Ser Thr Pro Pro
385 390 395 400
His Ala Pro Val Pro Gln Ser Glu Ile Pro Thr Ser Pro Thr Ser Thr
405 410 415
Gln Pro Pro Ser Pro
420

<210>373
<211>146
<212>PRT
<213>Chlamydia trachomatis
<400>373
Met Gln Asn Gln Phe Glu Gln Leu Leu Thr Glu Leu Gly Thr Gln Ile
1 5 10 15
Asn Ser Pro Leu Thr Pro Asp Ser Asn Asn Ala Cys Ile Val Arg Phe
20 25 30
Gly Tyr Asn Asn Val Ala Val Gln Ile Glu Glu Asp Gly Asn Ser Gly
35 40 45
Phe Leu Val Ala Gly Val Met Leu Gly Lys Leu Pro Glu Asn Thr Phe
50 55 60
Arg Gln Lys Ile Phe Lys Ala Ala Leu Ser Ile Asn Gly Ser Pro Gln
65 70 75 80
Ser Asn Ile Lys Gly Thr Leu Gly Tyr Gly Glu Ile Ser Asn Gln Leu
85 90 95
Tyr Leu Cys Asp Arg Leu Asn Met Thr Tyr Leu Asn Gly Glu Lys Leu
100 105 110
Ala Arg Tyr Leu Val Leu Phe Ser Gln His Ala Asn Ile Trp Met Gln
115 120 125
Ser Ile Ser Lys Gly Glu Leu Pro Asp Leu His Ala Leu Gly Met Tyr
130 135 140
His Leu
145

<210>374
<211>388
<212>PRT
<213>Chlamydia trachomatis
<400>374
Met Pro Ser Leu Ser Gln Ser Arg Arg Ile Ile Gln Gln Ser Ser Ile
1 5 10 15
Arg Lys Ile Trp Asn Gln Ile Asp Thr Ser Pro Lys His Gly Val Cys
20 25 30
Val Pro Leu Phe Ser Leu His Thr Gln Glu Ser Cys Gly Ile Gly Glu

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          35                  40                  45
Phe Leu Asp Leu Ile Pro Met Ile Asp Trp Cys Ile Ser Cys Gly Phe
      50                  55                  60
Gln Ile Leu Gln Ile Leu Pro Ile Asn Asp Thr Gly Ser Cys Ser Ser
 65                  70                  75                  80
Pro Tyr Asn Ser Ile Ser Ser Ile Ala Leu Asn Pro Leu His Leu Ser
                 85                  90                  95
Ile Ser Ala Leu Pro Tyr Lys Glu Glu Val Pro Ala Ala Glu Thr Arg
            100                 105                 110
Ile Arg Glu Met Gln Gln Leu Ser Gln Leu Pro Gln Val His Tyr Glu
        115                 120                 125
Lys Val Arg Ser Met Lys Arg Asp Phe Phe Gln Glu Tyr Tyr Arg Val
    130                 135                 140
Cys Lys Gln Lys Lys Leu Thr Asp His Pro Asp Phe Tyr Ala Phe Cys
145                 150                 155                 160
Glu Gln Glu Lys Tyr Trp Leu His Pro Tyr Ala Leu Phe Arg Ser Ile
                165                 170                 175
Arg Glu His Leu Asp Asn Leu Pro Ile Asn His Trp Pro Thr Thr Tyr
            180                 185                 190
Thr Asp Leu Ser Gln Ile Thr Glu His Glu Arg Thr Phe Ala Glu Asp
        195                 200                 205
Ile Gln Phe His Ser Tyr Leu Gln Tyr Leu Cys Phe Gln Gln Met Thr
    210                 215                 220
Gln Val Arg Glu His Ala Asn Cys Lys Ser Cys Leu Ile Lys Gly Asp
225                 230                 235                 240
Ile Pro Ile Leu Ile Ser Lys Asp Ser Cys Asp Val Trp Phe Tyr Arg
                245                 250                 255
His Tyr Phe Ser Ser Ser Glu Ser Val Gly Ala Pro Pro Asp Leu Tyr
            260                 265                 270
Asn Ala Glu Gly Gln Asn Trp His Leu Pro Ile Tyr Asn Met Lys Thr
        275                 280                 285
Leu Gln Gln Asp Asn Tyr Leu Trp Trp Lys Glu Arg Leu Arg Tyr Ala
    290                 295                 300
Glu Asn Phe Tyr Ser Leu Tyr Arg Leu Asp His Ile Val Gly Leu Phe
305                 310                 315                 320
Arg Phe Trp Val Trp Asp Glu Ser Gly Cys Gly Arg Phe Glu Pro His
                325                 330                 335
Asp Pro Lys Asp Tyr Leu Ala Gln Gly Gln Asp Ile Leu Ser His Leu
            340                 345                 350
Leu Thr Ser Ser Ser Met Leu Pro Ile Gly Glu Asp Leu Gly Thr Ile
        355                 360                 365
Pro Ser Asp Val Lys Arg Met Leu Glu Ser Phe Ala Val Cys Gly Thr
    370                 375                 380
Arg Ile Pro Arg
385
<210>375
<211>106
<212>PRT
<213>Chlamydia trachomatis
<400>375
Leu Leu Gln Leu Pro Cys Arg Glu Ile Ala Ala Ser Glu Tyr Arg Lys
  1               5                  10                  15
Val Met Ser Lys Lys Cys Ala Leu Thr Gly Arg Lys Pro Arg Arg Gly
            20                  25                  30
Tyr Ser Tyr Ala Ile Arg Gly Ile Ser Lys Lys Lys Lys Gly Ile Gly
        35                  40                  45
Leu Lys Val Thr Gly Arg Thr Lys Arg Arg Phe Phe Pro Asn Met Met
     50                  55                  60
Thr Lys Arg Leu Trp Ser Thr Glu Glu Asn Arg Phe Leu Lys Leu Lys
 65                  70                  75                  80
Ile Ser Ala Ala Ala Leu Arg Leu Val Asp Lys Leu Gly Leu Asp Gln
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                  85                  90                  95
Val Val Ala Arg Ala Lys Ser Lys Gly Phe
            100                 105
<210>376
<211>538
<212>PRT
<213>Chlamydia trachomatis
<400>376
Tyr Asp Val Phe Ser Leu Arg Ser Leu Val Asp Tyr Leu Arg Ser Gln
  1               5                  10                  15
His Glu Leu Ile Asp Ile His Val Pro Val Asp Pro His Leu Glu Ile
             20                  25                  30
Ala Glu Ile His Arg Arg Val Val Glu Arg Glu Gly Pro Ala Leu Leu
         35                  40                  45
Phe His Gln Val Lys Gly Ser Pro Phe Pro Val Leu Thr Asn Leu Phe
     50                  55                  60
Gly Thr Arg Arg Arg Val Asp Leu Leu Phe Pro Asp Leu Ser Ser Asp
 65                  70                  75                  80
Leu Phe Glu Gln Ile Ile His Leu Leu Ser Ser Pro Pro Ser Phe Ser
                 85                  90                  95
Ser Leu Trp Lys His Arg Ser Leu Phe Lys Arg Gly Ile Ser Ala Leu
            100                 105                 110
Gly Met Arg Lys Arg His Leu Arg Ser Ser Pro Phe Leu Tyr Gln Asp
        115                 120                 125
Ala Pro Asn Leu Ser Gln Leu Pro Met Leu Thr Ser Trp Pro Glu Asp
    130                 135                 140
Gly Gly Pro Phe Leu Thr Leu Pro Leu Val Tyr Thr Gln Ser Pro Glu
145                 150                 155                 160
Asn Gly Val Pro Asn Leu Gly Met Tyr Arg Met Gln Arg Phe Asp Lys
                165                 170                 175
Glu Thr Leu Gly Leu His Phe Gln Ile Gln Lys Gly Gly Gly Ala His
            180                 185                 190
Phe Phe Glu Ala Glu Gln Lys Lys Gln Asn Leu Pro Val Thr Val Phe
        195                 200                 205
Leu Ser Gly Asn Pro Phe Leu Ile Leu Ser Ala Ile Ala Pro Leu Pro
    210                 215                 220
Glu Asn Val Pro Glu Leu Leu Phe Cys Ser Phe Leu Gln Asn Lys Lys
225                 230                 235                 240
Leu Ser Phe Val Glu Lys His Pro Gln Ser Gly His Pro Leu Leu Cys
                245                 250                 255
Asp Ser Glu Phe Ile Leu Thr Gly Glu Ala Val Ala Gly Glu Arg Arg
            260                 265                 270
Pro Glu Gly Pro Phe Gly Asp His Phe Gly Tyr Tyr Ser Leu Thr His
        275                 280                 285
Asp Phe Pro Ile Phe Lys Cys Asn Cys Leu Tyr His Lys Lys Asp Ala
    290                 295                 300
Ile Tyr Pro Ala Thr Val Val Gly Lys Pro Phe Gln Glu Asp Phe Phe
305                 310                 315                 320
Leu Gly Asn Lys Leu Gln Glu Leu Leu Ser Pro Leu Phe Pro Leu Ile
                325                 330                 335
Met Pro Gly Val Gln Asp Leu Lys Ser Tyr Gly Glu Ala Gly Phe His
            340                 345                 350
Ala Leu Ala Ala Ala Ile Val Lys Glu Arg Tyr Trp Lys Glu Ala Leu
        355                 360                 365
Arg Ser Ala Leu Arg Ile Leu Gly Glu Gly Gln Leu Ser Leu Thr Lys
    370                 375                 380
Phe Leu Trp Ile Thr Asp Gln Ser Val Asp Leu Glu Asn Phe Ser Ser
385                 390                 395                 400
Leu Leu Glu Cys Val Leu Glu Arg Met Asn Phe Asp Arg Asp Leu Leu
                405                 410                 415
Ile Leu Ser Glu Thr Ala Asn Asp Thr Leu Asp Tyr Thr Gly Ser Gly
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            420                 425                 430
Phe Asn Lys Gly Ser Lys Gly Ile Phe Leu Gly Val Gly Ala Pro Ile
        435                 440                 445
Arg Ser Leu Pro Arg Arg Tyr Arg Gly Pro Ser Leu Pro Gly Ile Ser
    450                 455                 460
Gln Ile Gly Val Phe Cys Arg Gly Cys Leu Val Leu Glu Thr Ser Leu
465                 470                 475                 480
Gln Gln Leu Asp Ile Pro Ala Leu Leu Lys Asp Pro His Leu Ala Asp
                485                 490                 495
Trp Pro Leu Val Ile Leu Val Glu Asp Leu Ser Ser Ala Leu Ser Ser
            500                 505                 510
Thr Lys Glu Phe Ile Trp Glu Asn Ile Tyr Thr Ile Phe Ser Cys Asn
        515                 520                 525
Arg Phe Thr His Pro Cys Lys Ser Asn His
    530                 535
<210>377
<211>137
<212>PRT
<213>Chlamydia trachomatis
<400>377
Asn Glu Lys Asn Lys Thr Leu Ile Ser Lys Ile Met Phe Ser Leu Val
  1                 5                  10                  15
Ser Leu Phe Val Gly Gly Phe Leu Leu Lys Ala Pro Ala Pro Thr Gln
            20                  25                  30
Ser Ala Asp Thr Phe Gln Thr Leu Ile Glu Ser Lys Glu Pro Val Ile
        35                  40                  45
Phe Thr Lys Gln Cys Gly Asp Asn Val Thr Gln Ile Leu Cys Asp Ala
    50                  55                  60
Ile Asp Ser Ala Lys Lys Asp Ile Phe Leu Xaa Ile Tyr Asp Leu Ser
65                  70                  75                  80
Ala Pro Ala Ile Thr Thr Ser Leu Lys Lys Gln Val Ser Ala Arg Ile
                85                  90                  95
Pro Val Cys Ile His Tyr Gln Arg Ile Ser Lys Asn Ala Glu Phe Ser
            100                 105                 110
Gln Ser Pro Tyr Leu Thr Pro Trp Glu Asn Ile Leu Pro Cys Thr Glu
        115                 120                 125
Asn Ser Cys Ile Lys Lys Leu Trp Gln
    130                 135
<210>378
<211>197
<212>PRT
<213>Chlamydia trachomatis
<400>378
Lys Ala Gln Lys Phe Val Ile Leu Leu Lys Arg Lys Pro Leu Val Gly
  1                 5                  10                  15
Ala Leu Leu Thr Ile Asn Ser Ser Ser Ile Val Ser Phe Asp Gly Gly
            20                  25                  30
Ser Ser Ala Ala Leu Glu Thr Val Leu His His Ile Arg Ser Ala Lys
        35                  40                  45
Glu Ser Ile Gln Val Gly Met Phe Ala Leu Thr Leu Pro Gln Ile Ile
    50                  55                  60
Ala Glu Leu Asn Ala Ala Gln Asn Cys Gly Val Asp Val Val Ile Leu
65                  70                  75                  80
Val Asp Lys Gly Tyr Lys Ser Phe Thr Val Gln Gln Ile Lys Gln Leu
                85                  90                  95
Glu His Pro Ser Leu Ser Ile Tyr Glu Lys Val Thr Pro Tyr Gln Leu
            100                 105                 110
His His Lys Phe Gly Ile Phe Asp Lys Lys Thr Leu Ile Thr Gly Ser
        115                 120                 125
Val Asn Trp Ser Glu Asn Gly Phe Leu Ile Asn Thr Glu Asp Met Ile
    130                 135                 140
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Val Ile Glu Asn Leu Thr Glu Lys Gln Gln Ser Lys Ile Gln Ala Ile
145                 150                 155                 160
Trp Glu Gly Leu Val Arg Glu Cys Ala Leu Tyr Tyr Ser Pro Asp Gln
                165                 170                 175
Glu Glu Lys Glu Lys Asp Pro Leu Ile Ile Pro Phe Pro Pro Ser Glu
            180                 185                 190
Lys Lys Gln Ala Ala
        195
<210>379
<211>171
<212>PRT
<213>Chlamydia trachomatis
<400>379
Asn Glu Arg Asn Arg Gly Cys Arg Arg Arg Phe Met Arg Ile Ile Pro
  1               5                  10                  15
Phe Asp Pro Tyr Gly Ser Met Ala Phe Gln Ala Ile Ala Lys Asp Pro
             20                  25                  30
Gln Glu Arg Lys Asn Gly Ser Ile Ser Glu Lys Ile Ser Glu Glu Ile
         35                  40                  45
Ala Arg Asn Glu Ala Leu Arg Met Ala Leu Leu Ala Ile Ala Asp Gln
     50                  55                  60
Glu Asp Lys Glu Lys Lys Gln Lys His Arg Phe Lys Ile Leu Thr Lys
 65                  70                  75                  80
Lys Gln Thr Arg Met Leu Leu Gly Gln Leu Arg His Phe Arg Leu Asp
                85                  90                  95
Phe Gln Lys Leu Gln Ala Gly Val Val Ile Glu Trp Ser Trp Asp Asp
            100                 105                 110
Lys Ser Lys Arg Ser Lys Ser Leu Gly Ser Arg Ile Thr Arg Lys Ser
        115                 120                 125
Lys Lys Thr Ile Cys Ile Ser Ala Ala Ala Ala Gln Ala Ile Ala His
    130                 135                 140
Ala Ala Glu Ala Trp Val Ile Ala Arg Asn Glu Gly Ile Leu Glu Met
145                 150                 155                 160
Thr Leu Ser Leu Phe Gln His Lys Asp Asn Glu
                165                 170
<210>380
<211>563
<212>PRT
<213>Chlamydia trachomatis
<400>380
Glu Lys Ile Met Ser Ile Ser Gly Ser Gly Asn Val Ser Pro Ala Thr
  1               5                  10                  15
Pro Asp Phe Asp Pro Ser Ile Leu Met Gly Arg Gln Ala Ala Ser Ala
             20                  25                  30
His Ala Ala Lys Glu Ala Ser Gly Ala Ser Lys Ala Thr Glu Thr Ser
         35                  40                  45
Ala Ala Glu Gln Gln Ala Leu Ile Ser Ser Gly Thr Glu Leu Asp Tyr
     50                  55                  60
Val Thr Asp Leu Gln Gln Ser Glu Gly Lys Tyr Lys Lys Thr Leu Asp
 65                  70                  75                  80
Lys Thr Ser Lys Ser Pro Lys Thr Lys Leu Lys Gly Asn Phe Ser Lys
                85                  90                  95
Val Arg Ala Gly Thr Lys Gly Phe Leu Thr Gly Phe Gly Thr Arg Ala
            100                 105                 110
Ser Arg Ile Ser Ala Arg Lys Ala Glu Asn Asn Gly Glu Gly Met Ser
        115                 120                 125
Met Ile Pro Ser Gln Met Glu Tyr Val Lys Lys Lys Gly Asn Arg Val
    130                 135                 140
Ser Pro Glu Met Gln Asn Phe Tyr Leu Gly Ala Ser Gly Leu Trp Ser
145                 150                 155                 160
Pro Thr Ser Asp Val Ser Ser Lys Thr Glu Asn Arg Leu Gly Ala Thr
```

```
                 165                 170                 175
Ala Leu Ser Thr Thr Pro Ser Leu Thr Thr Met Gln Asp Pro Val Ser
             180                 185                 190
Ile Glu His Leu Ser Ser Gly Glu Ile Thr Ala Leu Ala Ser Phe Asn
         195                 200                 205
Pro Asn Val Arg Ala Ala Ser Leu Asn Glu Gln Thr Ile Asn Ala Trp
     210                 215                 220
Thr Glu Ala Arg Leu Gly Gly Glu Met Val Ser Thr Leu Leu Asp Pro
225                 230                 235                 240
Asn Ile Glu Thr Ser Ser Leu Leu Arg Arg Ala Pro Thr Val Ser Asn
                 245                 250                 255
Glu Gly Met Val Asp Val Ser Asp Met Gly Asn Gln Thr Thr Ser Leu
             260                 265                 270
Ser Met Glu Gly Leu Val Asn Thr Val Val Asp Asp Pro Ala Ser Ala
         275                 280                 285
Glu Glu Glu Lys Lys Thr Gly Glu Leu Ser Leu Glu Glu Met Ala Ala
     290                 295                 300
Met Ala Lys Met Met Ala Ala Leu Leu Ser Ser Gly Gln Gly Met Ala
305                 310                 315                 320
Val Phe Ile Ala Ser Ser Thr Pro Ser Ser Gly Ser Thr Gln Phe Pro
                 325                 330                 335
Glu Pro Lys Phe Ser Gly Thr Ile Pro His His Phe Ser Lys Lys Glu
             340                 345                 350
Asp Asn Glu Thr Ile Trp Gly Leu Asp Ser Gln Ile Gly Ser Ile Ala
         355                 360                 365
Phe Asp Thr Arg Arg Glu Asn Asn Ala Ser Pro Leu Pro Thr Thr Ser
     370                 375                 380
Leu His Glu Glu Ala Ser Tyr Arg Phe Pro Val Gly Glu Ala Pro Leu
385                 390                 395                 400
Asp Val Asn Glu Ile Pro Phe Ala Val Gln His Ser Thr Val Phe Ser
                 405                 410                 415
Glu Glu Thr Ala Asn Thr Glu Gln Ala Leu Ile Gln Asn Glu Ser Leu
             420                 425                 430
Gly Glu Ile Pro Val Ser Ala Glu Val Val Gly Gln Asp Thr Val Ser
         435                 440                 445
Ser Ala Tyr Gln Phe Pro Ser His Leu Gly Met Ala Val Leu Ala Ser
     450                 455                 460
Val Pro Leu Ser Thr Glu Asp Tyr Lys Thr Ala Val Glu His Arg Lys
465                 470                 475                 480
Gly Pro Gly Gly Pro Pro Asp Pro Leu Ile Tyr Gln Tyr Arg Asn Val
                 485                 490                 495
Ala Val Asp Pro Ala Ile Ile Phe Gln Ser Pro Ser Pro Phe Ser Val
             500                 505                 510
Ser Ser Arg Phe Ser Val Gln Gly Lys Pro Glu Ala Val Ala Val Tyr
         515                 520                 525
Asn Asp Asp Gln Glu Glu Ala Ala Gly Gly Asn Arg Asp Ser Asp Glu
     530                 535                 540
Gly Lys Asp Gln Glu Gln Asp Lys Thr Arg Glu Thr Glu Asp Ala Gly
545                 550                 555                 560
Gly Asp Ser
```

<210>381
<211>105
<212>PRT
<213>Chlamydia trachomatis
<400>381

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Asn Lys Leu Phe Trp Phe Leu Leu Met Lys Lys Arg Ser Ser Arg Lys
  1               5                  10                  15
Leu Ala Gln Val Ile Gly Arg Lys Thr Gly Asn Tyr Phe Pro Ala Ser
             20                  25                  30
Ile Glu Gly Glu Thr Lys Lys Glu His Lys Arg Tyr Tyr Ser Thr Ala
```

```
          35                  40                  45
Ser Lys Glu Lys Glu Ser Leu Arg Lys Arg Ala Lys Glu Phe Asp Val
      50                  55                  60
Leu Val His Ser Leu Leu Asp Lys His Val Pro Gln Asn Ser Asp Gln
 65                  70                  75                  80
Val Leu Ile Phe Thr Tyr Gln Asn Gly Phe Val Glu Thr Asp Phe His
                 85                  90                  95
Asn Phe Gly Arg Tyr Ser Val Lys Leu
            100                 105
```

<210>382
<211>295
<212>PRT
<213>Chlamydia trachomatis

```
<400>382
Asn His Leu Thr Lys Tyr Leu Cys Met Leu Leu Lys Gly Ala Pro Ala
  1               5                  10                  15
Ala Asp His Ile Leu Ala Thr Ile Lys Glu Asn Ile Arg Ala Cys Ser
            20                  25                  30
Lys Ala Pro Gly Leu Ala Val Val Leu Ile Gly Asn Asn Pro Ala Ser
          35                  40                  45
Glu Ile Tyr Val Asn Met Lys Ile Lys Arg Ala Thr Asp Leu Gly Met
      50                  55                  60
Val Ser Lys Ser Tyr Arg Lys Pro Ser Asp Ala Thr Leu Ser Asp Ile
 65                  70                  75                  80
Leu Ala Leu Ile His Gln Leu Asn Asn Asp Glu Asn Ile His Gly Ile
                 85                  90                  95
Leu Val Gln Leu Pro Leu Pro Lys His Leu Asp Ala Gln Ala Ile Leu
            100                 105                 110
Ser Thr Ile Thr Pro Asp Lys Asp Val Asp Gly Leu His Pro Val Asn
        115                 120                 125
Val Gly Lys Leu Leu Leu Gly Glu Thr Asp Gly Phe Ile Pro Cys Thr
    130                 135                 140
Pro Ala Gly Ile Val Glu Leu Cys Lys Tyr Tyr Glu Ile Pro Leu His
145                 150                 155                 160
Gly Lys His Val Val Ile Leu Gly Arg Ser Asn Ile Val Gly Lys Pro
                165                 170                 175
Leu Ala Ala Leu Leu Met Gln Arg His Ala Asp Thr Asn Ala Ser Val
            180                 185                 190
Thr Leu Leu His Ser Gln Ser Glu His Leu Thr Glu Ile Thr Arg Thr
        195                 200                 205
Ala Asp Ile Leu Ile Ser Ala Ile Gly Val Pro Leu Phe Val Asn Lys
    210                 215                 220
Glu Met Ile Ala Glu Lys Thr Val Ile Met Asp Val Gly Thr Ser Arg
225                 230                 235                 240
Ile Pro Ala Ala Asn Pro Lys Gly Tyr Ile Leu Val Gly Asp Val Asp
                245                 250                 255
Phe Asn Asn Val Val Pro Val Cys Arg Ala Ile Thr Pro Val Pro Gly
            260                 265                 270
Gly Val Gly Pro Met Thr Val Ala Met Leu Met Arg Asn Thr Trp Glu
        275                 280                 285
Ser Phe Leu Arg His Thr Ser
    290                 295
```

<210>383
<211>141
<212>PRT
<213>Chlamydia trachomatis

```
<400>383
Gln Cys Cys Thr Cys Leu Pro Ser His Tyr Ser Cys Pro Trp Trp Ser
  1               5                  10                  15
Arg Pro Asn Asp Arg Arg Tyr Ala Asn Glu Lys Tyr Met Gly Lys Phe
            20                  25                  30
```

```
Phe Ala Ser Tyr Leu Leu Ile Leu Ala Pro Phe Phe Leu Gln Ser Cys
          35                  40                  45
Ser Ala Pro Ser Arg Thr Thr Leu Glu Gly Val Arg Met Thr Ile Pro
     50                  55                  60
Tyr Arg Ile Val Phe Gly Glu Ala Leu Ser Pro Asp Ala Phe Gln Gln
 65                  70                  75                  80
Ala Gln Lys Glu Ile Asp Arg Val Phe Asp His Ile Asp Gln Thr Phe
                 85                  90                  95
Asn Asn Trp Asn Pro Leu Ser Glu Ile Ser Arg Ile Asn Arg Thr Thr
            100                 105                 110
Lys Gln Thr Pro Ile Pro Leu Ser Pro Ala Leu Phe Ala Phe Leu Cys
        115                 120                 125
Glu Ile Asp His Phe His Ala Phe Ser Asp Gly Arg Phe
    130                 135                 140
<210>384
<211>129
<212>PRT
<213>Chlamydia trachomatis
<400>384
Thr Ile Ser Thr Pro Ser Leu Met Ala Val Phe Asp Pro Thr Leu Gly
  1               5                  10                  15
Ala Leu Lys Ser Leu Trp Leu Leu His Leu Lys Ser His Thr Ile Pro
            20                  25                  30
Ser Gln Glu Leu Gln His Leu Tyr Lys His Ser Ser Gly Trp His Leu
        35                  40                  45
Ile Ser Leu Asp Lys Thr Gln Gln Thr Leu Arg Lys Leu Ser Pro Leu
    50                  55                  60
Val Gln Leu Asp Leu Cys Gly Thr Val Lys Gly Phe Ala Val Asp Leu
 65                  70                  75                  80
Leu Gly Thr Ala Cys Ala Gln Phe Cys Gln Asn Tyr Tyr Val Glu Trp
                 85                  90                  95
Gly Gly Glu Ile Lys Thr Arg Gly Lys His Pro Ser Gly Arg Ser Trp
            100                 105                 110
Leu Ser Leu His Gln Leu Pro Gln Arg Phe Phe Ile Cys Met Ile Met
        115                 120                 125
Leu

<210>385
<211>123
<212>PRT
<213>Chlamydia trachomatis
<400>385
Gln Glu Gln Lys Leu Asn Ser Leu Arg Asp His Gly Gly Asn Leu Gly
  1               5                  10                  15
Asp Ala Tyr Val Thr Ile Ser Lys Gly Glu Ala Trp Leu Leu Gln Ser
            20                  25                  30
Ser Ile Ala Pro Tyr Arg Phe Gly Asn Ile Asn Asn His Glu Glu Arg
        35                  40                  45
Arg Lys Arg Lys Leu Leu Leu His Lys Tyr Glu Ile His Lys Leu Asp
    50                  55                  60
Ala Arg Ile Ser Gln Lys Gly Leu Thr Val Val Pro Leu Ser Phe Phe
 65                  70                  75                  80
Phe Ser Lys Gly Phe Val Lys Val Arg Ile Gly Cys Cys Arg Gly Lys
                 85                  90                  95
Lys Ala His Asp Lys Arg Gln Ser Ile Ile Glu Arg Glu Lys Asn Arg
            100                 105                 110
Glu Leu Ala Ala Ala Met Lys Arg Ser Cys Arg
        115                 120
<210>386
<211>428
<212>PRT
```

<213>Chlamydia trachomatis
<400>386

```
Leu Ser Leu Ile Ile Ile Leu Ile Ser Lys Tyr His Val Asn Phe Arg
  1               5                  10                  15
Leu His Gly Ala Phe Ser Asn Pro Ser Phe Val Lys Ile Phe Phe Thr
             20                  25                  30
Lys Ala Ser Pro Glu Arg Arg Leu Thr Cys Phe His Val Thr Lys His
         35                  40                  45
Gly Tyr Ser Phe Gln Thr Asp Leu His Asp Tyr Arg Lys Ile Met Lys
     50                  55                  60
Phe Val Ile Ser Arg Asn Glu Leu Gly Asn Leu Ile Lys Lys Val Gln
 65                  70                  75                  80
Asn Val Val Pro Gln Ser Thr Pro Ile Pro Val Leu Thr His Val Leu
                 85                  90                  95
Ile Glu Ser Cys Asn Asp Glu Leu Val Phe Thr Ala Thr Asp Leu Thr
            100                 105                 110
Val Ser Thr Arg Cys Val Val Lys Ala Lys Val Tyr Glu Ser Gly Ser
        115                 120                 125
Val Thr Ile Pro Ser Arg Arg Phe Phe Gln Leu Ile Arg Glu Leu Thr
    130                 135                 140
Glu Ala Asn Ile Glu Val Ala Ala His Ser Gly Glu Met Ala Thr Ile
145                 150                 155                 160
Thr Ser Gly Ser Ser Cys Phe Arg Leu Leu Ser Met Gly Lys Glu Asp
                165                 170                 175
Phe Pro Met Leu Pro Asp Met Gln Asn Ala Leu Arg Phe Thr Leu Asp
            180                 185                 190
Ser Glu Arg Leu Lys Asp Met Phe Gln Arg Thr Ser Phe Ala Val Ser
        195                 200                 205
Arg Glu Glu Ser Arg Tyr Val Leu Thr Gly Val Leu Leu Ser Ile Ala
    210                 215                 220
Asn Gly Thr Met Thr Val Val Gly Thr Asp Gly Lys Arg Leu Ala Lys
225                 230                 235                 240
Ile Asp Thr Glu Ile Ser Leu Asp Pro Ser Phe Ser Gly Asp Tyr Ile
                245                 250                 255
Ile Pro Ile Lys Ala Val Glu Glu Ile Ile Arg Met Ser Ser Glu Asp
            260                 265                 270
Val Gln Ser Thr Ile Phe Leu Asp Gln Thr Lys Ile Ala Val Glu Cys
        275                 280                 285
Gly Asn Thr Leu Leu Val Thr Lys Leu Leu Ser Gly Glu Phe Pro Asp
    290                 295                 300
Phe Ser Pro Val Ile Ser Thr His Ser Ser Val Gln Leu Asp Leu His
305                 310                 315                 320
Arg Glu Glu Leu Ile Ser Leu Leu Lys Gln Val Ala Leu Phe Thr Asn
                325                 330                 335
Glu Ser Ser His Ser Val Lys Phe Ser Phe Ser Pro Gly Glu Leu Thr
            340                 345                 350
Leu Thr Ala Asn Cys Thr Lys Val Gly Glu Gly Lys Val Ser Met Ala
        355                 360                 365
Val Asn Tyr Thr Gly Glu Thr Leu Glu Ile Ala Phe Asn Pro Phe Phe
    370                 375                 380
Phe Leu Asp Ile Leu Lys His Ser Arg Asp Glu Leu Val Gln Leu Gly
385                 390                 395                 400
Ile Ser Asp Ser Tyr Asn Pro Gly Ile Ile Thr Asp Ser Thr Arg Ser
                405                 410                 415
Leu Phe Val Ile Met Pro Met Arg Leu His Asp Asp
            420                 425
```

<210>387
<211>365
<212>PRT
<213>Chlamydia trachomatis
<400>387

```
Met Arg Val Leu Ser Leu Phe Leu Lys Asp Phe Arg Asn Tyr Thr Asp
  1               5                  10                  15
Leu Arg Leu Glu Leu Gly Pro Glu Met Asn Ser Ile Phe Gly Leu Asn
            20                  25                  30
Ala Gln Gly Lys Thr Asn Leu Leu Glu Ala Leu Tyr Ile Leu Ser Leu
        35                  40                  45
Gly Arg Ser Phe Arg Thr Ser Arg Leu Thr Asp Ala Ile Arg Phe Gly
    50                  55                  60
Ala Ser His Phe Phe Ile Glu Ala Val Phe Ser His Lys Glu Val Phe
65                  70                  75                  80
His Thr Leu Ser Ile Gln Val Asp Lys Lys Gly Lys Lys Ile Leu Phe
                85                  90                  95
Asp Gly Ala Pro Ile Thr Lys Leu Ser Glu Leu Val Gly Leu Phe Pro
            100                 105                 110
Val Ile Leu Phe Ser Ile Lys Asp Ile Ala Ile Ile Glu Gly Ser Pro
        115                 120                 125
Ser Glu Arg Arg Arg Phe Leu Asp Leu Leu Leu Ala Gln Ala Ser Asp
    130                 135                 140
Lys Tyr Thr Glu His Ile Ser Leu Tyr His Lys Ala Leu Asp Gln Arg
145                 150                 155                 160
Asn Ala Ser Ile Lys Ala Gln Asn Gln Lys Ala Ile Ser Ala Trp Asn
                165                 170                 175
Ser Pro Leu Ile Ala Tyr Gly Ser Leu Val Ala Phe Leu Arg Asn Glu
            180                 185                 190
Cys Thr Lys Lys Leu Asn Thr Ile Phe Gln Thr Leu Trp Asp Asn Thr
        195                 200                 205
Leu Lys Glu Thr Leu Ser Leu Arg Tyr Glu Ser Ser Leu Ile Thr Glu
    210                 215                 220
Glu Ser Pro Thr Leu Asn Asp Ile Ala Ser Asn Tyr Tyr Glu Gln Leu
225                 230                 235                 240
Arg Ile Ala Asn Thr Lys Asp Leu Asp Leu Gly Tyr Thr Met Val Gly
                245                 250                 255
Pro His Arg Asp Glu Leu Leu Leu Thr Ile Asn Asp Leu Pro Val Ala
            260                 265                 270
Lys Phe Ser Ser Glu Gly Gln Lys His Ser Leu Leu Ala Val Leu Arg
        275                 280                 285
Phe Ala Glu Cys Val Tyr Leu Gln Glu Glu Phe Cys Ile His Pro Leu
    290                 295                 300
Leu Cys Met Asp Asp Ile His Ala Cys Leu Asp Gln Gln Arg Leu Asp
305                 310                 315                 320
Gln Leu Leu Gln Leu Ser Asn Ser Leu Gly Gln Val Val Thr Thr Ser
                325                 330                 335
Thr Ile Cys Pro Asp His Arg Ser Thr Thr Ser Cys Ile Phe His Val
            340                 345                 350
Thr Gln Ala Gln Val Ser Leu Val Ala Pro Gln Ser Leu
        355                 360                 365
<210>388
<211>333
<212>PRT
<213>Chlamydia trachomatis
<400>388
Asn Asn Ile Asn Arg Cys Cys Glu Met Lys Asn Phe Leu Leu Thr Ile
  1               5                  10                  15
Leu Phe Leu Leu Met Gly Thr Ser Leu Leu Ala Asp Pro Ser Val Ile
            20                  25                  30
Gln Thr Leu Thr Ser Gly Val Ala Gly Val Asn Ser Ile Arg Glu Glu
        35                  40                  45
Lys Glu Ser Val Val Cys Val His Ala Phe Leu Arg Ser Tyr Gly Ser
    50                  55                  60
Leu Lys Pro Ile Gly Arg Val Leu Glu Lys Glu Asn Tyr Asp Val Phe
65                  70                  75                  80
```

```
Ile Trp Asn Tyr Glu Thr Arg Lys Phe Thr Leu Glu Lys His Ala Glu
                85                  90                  95
His Leu Val Arg Leu Leu Asn Lys Ile Ala Glu Leu Lys Pro Gly Ile
            100                 105                 110
Pro Ile Asn Phe Val Thr His Ser Val Gly Gly Val Ile Val Arg Val
        115                 120                 125
Ala Leu Ala His Pro Asp Cys Pro Glu Glu Ala Lys Lys Gly Lys Ala
    130                 135                 140
Val Leu Met Ala Pro Pro Asn Ala Gly Ser Thr Leu Ala Arg Arg Tyr
145                 150                 155                 160
Ser Arg Ser Ser Leu Val Gln Phe Val Phe Gly Arg Lys Leu Gly Met
                165                 170                 175
Gln Leu Leu Thr Tyr Ser Pro Glu His Met Leu Asn Ile Ala Lys Met
            180                 185                 190
Pro Ser Ser Val Asp Val Leu Val Leu Ser Gly Thr Lys Lys Ser Lys
        195                 200                 205
Phe Leu Leu Phe Gln Leu Glu Glu Asp Asn Asp Gly Lys Val Cys Val
    210                 215                 220
Thr Glu Thr Arg Leu Asp Thr Pro His Gln Asn Tyr Ile Ile Asp Ala
225                 230                 235                 240
Asn His Thr Tyr Ile Ile Thr Asn Lys Thr Ser Leu Phe Leu Met Arg
                245                 250                 255
Glu Phe Leu Arg Asn Gly Ser Arg Ser Ser Ala Leu Thr Gln Val Pro
            260                 265                 270
Glu Glu Ile Glu Ala Ser Ile Gln Gln Ser Pro Lys Ala Lys Val Asn
        275                 280                 285
Lys Glu Lys Ser Lys Asp Ile Tyr Val Ile His Cys Leu Gly Ala His
    290                 295                 300
Pro Tyr Ser Leu Tyr Gly Phe Pro Lys Ser Arg Thr Ser Pro Asn Glu
305                 310                 315                 320
Asn Ser Arg Lys Val Leu Glu Gly Gln Glu Tyr Lys Lys
                325                 330
```

<210>389
<211>97
<212>PRT
<213>Chlamydia trachomatis

<400>389

```
Trp Leu Ser Gly Pro Val Gly Ile Val Arg Ile Leu His Thr Gly Trp
  1               5                  10                  15
Ser Val Gly Ile Pro Glu Ala Leu Ala Trp Ile Gly Leu Ile Ser Val
            20                  25                  30
Asn Leu Ala Val Leu Asn Leu Leu Pro Ile Pro Val Leu Asp Gly Gly
        35                  40                  45
Tyr Ile Leu Leu Cys Leu Trp Glu Ile Leu Ser Arg Arg Arg Leu Asn
    50                  55                  60
Met Arg Leu Val Glu Lys Ala Leu Val Pro Phe Met Ile Leu Leu Val
65                  70                  75                  80
Leu Phe Phe Val Phe Leu Thr Leu Gln Asp Leu Ser Arg Val Phe Val
                85                  90                  95
Gly
```

<210>390
<211>423
<212>PRT
<213>Chlamydia trachomatis

<400>390

```
Val Ala Leu Glu Ala Asp Phe Cys Phe Ser Arg Arg Pro Leu Ala Asn
  1               5                  10                  15
Leu Leu Val Ala Ile Phe Val Phe Gly Ile Leu Tyr Phe Ser Gly Gly
            20                  25                  30
Arg Thr Lys Ser Phe Ser Glu His Thr Ser Ile Val Gly Trp Val His
```

```
          35                  40                  45
Pro Ser Leu Glu Gln Gln Gly Leu His Ala Gly Asp Gln Ile Phe Phe
     50                  55                  60
Cys Asn Gly Gln Pro Tyr Ser Gly His Lys Met Ala Phe Ser Ser Ser
 65                  70                  75                  80
Leu Leu Glu Arg Lys Leu Ser Leu Gln Gly Gln His Pro Ala Tyr Phe
                 85                  90                  95
Ser Glu Ser Glu Ala Phe Ser Leu Glu Ala Pro Phe Asn Pro Asp Met
            100                 105                 110
Glu Gly Val Pro Cys Leu Gly Ala Ser Tyr Leu Leu Tyr Arg Gly Ser
        115                 120                 125
Asp Pro Leu Pro Glu Lys Ser Pro Leu Val Asp Ala Gly Leu Ser Glu
    130                 135                 140
Gly Asp Arg Leu Val Trp Met Asp Gly Leu Leu Val Phe Ser Gly Ala
145                 150                 155                 160
Gln Val Ser Gln Met Leu Asn Glu Lys Gln Ser Phe Leu Arg Val Glu
                165                 170                 175
Arg Gln Gly Lys Val Val Phe Val Arg Gln Ala Arg Val Leu Ala Gly
            180                 185                 190
Asp Leu Thr Leu Thr Pro Tyr Phe Lys Asn Glu Leu Ile Asp Cys Gln
        195                 200                 205
Tyr Glu Ala Gly Leu Lys Gly Lys Trp Ala Ser Leu Tyr Met Leu Pro
    210                 215                 220
Tyr Ile Ile Asn Gly Asp Gly Phe Val Glu Ser Lys Val Lys Leu Leu
225                 230                 235                 240 Asn Glu Arg Val
Ser Leu Asp Tyr Asn Leu Glu Leu Gly Asp Lys
                245                 250                 255
Ile Val Ala Val Asp Gly Ile Pro Val Met Ser Asn Ala Asp Ile Leu
            260                 265                 270
Arg Leu Val Gln Asp His Arg Val Ser Leu Ile Phe Gln Arg Met Ser
        275                 280                 285
Pro Glu Gln Leu Thr Val Leu Glu Gln Lys Ala Ala Asp Gln Ala Phe
    290                 295                 300
Ile Asn Ser Tyr Asp Met Asp Asp Leu Leu Arg Val Ala Glu Ser Val
305                 310                 315                 320
Gly Glu Glu Arg Glu Val Ser Arg Leu Gly Asp Tyr Arg Leu Val Thr
                325                 330                 335
Arg Val Gln Pro Arg Pro Trp Ala His Ile Tyr Ser Glu Ala Leu Leu
            340                 345                 350
Asp Lys Gln Arg Ala Leu Ala Ser Lys Phe Arg Asp Glu Gln Glu Arg
        355                 360                 365
Arg Tyr Tyr Leu Glu Arg Ile Glu Ala Glu Asn Gln Arg Ile Ser Leu
    370                 375                 380
Gly Ile Pro Leu Arg Ser Ser Arg Ser Val Gln Ser Gly Ser Leu Gly
385                 390                 395                 400
Ile Asp Gly Gly Ile Arg Phe Arg Gln Leu Lys Asp Cys Glu Ser Leu
                405                 410                 415
Gly Asp Gly Ala Gly Glu Pro
            420
<210>391
<211>110
<212>PRT
<213>Chlamydia trachomatis
<400>391
Met Thr Ile Ile Tyr Phe Val Leu Ala Ala Leu Ala Leu Gly Phe Leu
  1                 5                  10                  15
Ile Leu Ile His Glu Leu Gly His Leu Leu Ala Ala Lys Ala Val Gly
             20                  25                  30
Met Ser Val Glu Ser Phe Ser Ile Gly Phe Gly Pro Ala Leu Val Arg
         35                  40                  45
Lys Lys Ile Gly Ser Val Glu Tyr Arg Ile Gly Ala Ile Pro Phe Gly
```

```
     50                  55                  60
Gly Tyr Val Arg Ile Lys Gly Met Asp Arg Asn Asp Lys Asp Asn Ser
 65                  70                  75                  80
Gly Asp Lys Glu Lys Thr Val Tyr Asp Ile Pro Glu Gly Phe Phe Ser
                85                  90                  95
Lys Ser Pro Trp Lys Arg Ile Phe Val Leu Ala Ala Gly Leu
            100                 105                 110
```

<210>392
<211>380
<212>PRT
<213>Chlamydia trachomatis
<400>392

```
Leu Leu Lys His Leu Ala Leu Ile Gly Ser Thr Gly Ser Ile Gly Arg
  1                 5                  10                  15
Gln Val Leu Gln Val Val Arg Ser Ile Pro Asp Thr Phe Ile Ile Glu
            20                  25                  30
Thr Leu Ala Ala Tyr Gly Arg Asn Gln Glu Ala Leu Ile Ser Gln Ile
        35                  40                  45
Arg Glu Phe Asn Pro Arg Val Val Ala Val Arg Glu Glu Thr Thr Tyr
     50                  55                  60
Lys Glu Leu Arg Lys Leu Phe Pro His Ile Glu Ile Leu Leu Gly Glu
 65                  70                  75                  80
Glu Gly Leu Val Ser Val Ala Thr Glu Pro Ser Val Thr Ile Thr Ile
                85                  90                  95
Val Ala Ser Ser Gly Ile Asp Ala Leu Pro Ala Val Ile Ala Ala Ile
            100                 105                 110
Arg Gln Lys Lys Thr Ile Ala Leu Ala Asn Lys Glu Ser Leu Val Ala
        115                 120                 125
Ala Gly Glu Leu Val Thr Thr Leu Ala Arg Glu Asn Gly Val Gln Ile
    130                 135                 140
Leu Pro Ile Asp Ser Glu His Asn Ala Leu Phe Gln Cys Leu Glu Gly
145                 150                 155                 160
Arg Asp Ser Ser Thr Ile Lys Lys Leu Leu Leu Thr Ala Ser Gly Gly
                165                 170                 175
Pro Leu Arg Asn Lys Ser Lys Glu Glu Leu Gln Lys Val Ser Leu Gln
            180                 185                 190
Glu Val Leu Arg His Pro Val Trp Asn Met Gly Pro Lys Ile Thr Val
        195                 200                 205
Asp Ser Ser Thr Leu Val Asn Lys Gly Leu Glu Ile Ile Glu Ala Phe
    210                 215                 220
Trp Leu Phe Gly Leu Glu Ala Val Glu Ile Glu Ala Val Ile His Pro
225                 230                 235                 240
Gln Ser Leu Val His Gly Met Val Glu Phe Cys Asp Gly Thr Ile Leu
                245                 250                 255
Ser Val Met Lys Pro Pro Ser Met Leu Phe Pro Ile Gln His Val Leu
            260                 265                 270
Thr Phe Pro Glu Arg Ser Pro Ala Ile Gly Pro Gly Phe Asp Phe Leu
        275                 280                 285
Ser Asn Arg Thr Leu Glu Phe Phe Pro Ile Asp Glu Asp Arg Phe Pro
    290                 295                 300
Ser Val His Leu Ala Lys Arg Val Leu Leu Glu Lys Gly Ser Met Gly
305                 310                 315                 320
Cys Phe Phe Asn Gly Ala Asn Glu Ala Leu Val His Arg Phe Leu Ala
                325                 330                 335
Gly Glu Ile Ser Trp His Gln Ile Val Pro Lys Leu Gln Ala Leu Val
            340                 345                 350
Asp Gln His Arg Val Gln Ser Cys Leu Ser Leu Glu Glu Ile Leu Ser
        355                 360                 365
Val Asp Ala Glu Ala Arg Ala Arg Ala Gln Glu Cys
    370                 375                 380
```

<210>393

<211>167
<212>PRT
<213>Chlamydia trachomatis
<400>393
Gly Trp Ile Thr Ala Ser Ile Ser Thr Ala Ser Ser Pro Asn Ser Gln
1 5 10 15
Lys Ala Ser Ile Ile Ser Lys Pro Leu Phe Thr Lys Val Glu Glu Ser
20 25 30
Thr Val Ile Leu Gly Pro Ile Phe Gln Thr Gly Cys Arg Lys Thr Ser
35 40 45
Cys Lys Glu Thr Phe Cys Asn Ser Ser Phe Asp Leu Phe Leu Asn Gly
50 55 60
Pro Pro Glu Ala Val Asn Asn Asn Phe Leu Met Val Glu Glu Ser Leu
65 70 75 80
Pro Ser Lys His Trp Lys Ser Ala Leu Cys Ser Leu Ser Met Gly Arg
85 90 95
Ile Cys Thr Pro Phe Ser Leu Ala Lys Val Val Thr Asn Ser Pro Ala
100 105 110
Ala Thr Asn Asp Ser Leu Leu Ala Lys Ala Ile Val Phe Phe Cys Arg
115 120 125
Ile Ala Ala Met Thr Ala Gly Lys Ala Ser Ile Pro Asp Glu Ala Thr
130 135 140
Met Val Ile Val Thr Glu Gly Ser Val Ala Thr Glu Thr Asn Pro Ser
145 150 155 160
Ser Pro Lys Arg Ile Ser Ile
165

<210>394
<211>167
<212>PRT
<213>Chlamydia trachomatis
<400>394
Gly Pro Ser Leu Ser Leu Val Met Arg Xaa Phe Thr Lys Thr Asp Ile
1 5 10 15
Leu Pro Ile Phe Leu Val Leu Leu Ile Asn Leu Gly Ile Ser Tyr Cys
20 25 30
Phe Phe Ser Ser Phe Val Cys Val Ser Phe Asp Thr Ile Phe Ala Phe
35 40 45
Ser Leu Gly Ile Arg Val Arg Leu Val Asp Tyr Leu Val Met Leu Leu
50 55 60
Leu Ser Ala Ser Ile Val Gly Ala Phe Lys Ala Val Gly Val Leu Met
65 70 75 80
Ser Leu Ala Phe Leu Leu Ile Pro Gly Leu Ile Ala Lys Leu Ile Ala
85 90 95
Ser Ser Val Gln Glu Met Met Val Tyr Ser Met Val Phe Gly Gly Leu
100 105 110
Ala Ala Leu Ile Ala Pro Ala Leu Ser Arg Ser Ile Leu Ser Val Tyr
115 120 125
Gly Ile Gly Leu Ser Thr Ser Gly Leu Ala Val Gly Leu Leu Leu Val
130 135 140
Phe Tyr Val Val Met Leu Val Phe Val Cys Ser Lys Arg Ala Ile Met
145 150 155 160
Leu Arg Gln Lys Leu Asp Lys
165

<210>395
<211>162
<212>PRT
<213>Chlamydia trachomatis
<400>395
Met Val Ala Ser Ile Ser Pro Tyr Tyr Gly Val Ser Phe Leu Glu Phe
1 5 10 15
Phe Leu Val Phe Phe Ser Arg Leu Phe Ser Gly Lys Leu Phe Tyr Asp

```
            20                  25                  30
His Leu Tyr Ile Asp Asp Ile Gln Val Ile Val Phe Phe Ala Ile Ala
        35                  40                  45
Val Ser Cys Ser Val Val Gly Thr Phe Leu Val Leu Lys Lys Met Ala
    50                  55                  60
Met Tyr Ala Asn Val Val Ser His Thr Ile Leu Phe Gly Leu Val Cys
65                  70                  75                  80
Val Cys Leu Phe Thr His Gln Leu Ile His Leu Ser Met Gln Ala Leu
                85                  90                  95
Thr Ile Ala Ala Val Ser Thr Thr Leu Leu Thr Gly Ala Ser Ile His
            100                 105                 110
Phe Leu Arg Asn Val Phe Lys Val Ala Glu Glu Ala Ser Thr Ala Leu
        115                 120                 125
Val Phe Ser Leu Leu Phe Ser Ala Ser Leu Leu Leu Leu Val Phe Leu
    130                 135                 140
Thr Arg Asn Ala His Val Gly Thr Glu Leu Val Ile Gly Asn Ala Asp
145                 150                 155                 160
Xaa Tyr
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<210>396
<211>145
<212>PRT
<213>Chlamydia trachomatis
<400>396

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Leu Phe Ser Arg Asp Glu Glu His Leu Leu Lys Ile Phe Trp Tyr Leu
  1               5                  10                  15
Arg Glu Gln Asn Thr Tyr Gln Val Gly Val Arg Asp Phe Val Arg Ser
            20                  25                  30
Arg Lys Tyr Gln Glu Tyr Phe Gly Asp Lys Val Phe Pro Arg Phe Arg
        35                  40                  45
Met Phe Leu Leu Cys Lys Lys Gly Leu Val Ser Cys Ser Glu His Gln
    50                  55                  60
Trp Ser Leu Thr Asp Lys Gly Leu Ala Arg Ala Ala Lys Leu Val Arg
65                  70                  75                  80
Ala His Arg Leu Trp Glu Ser Tyr Leu Val Ser Gln Leu Gly Phe Asn
                85                  90                  95
Lys Asn Glu Val His His Phe Ala Glu Glu Met Glu His Val Leu Thr
            100                 105                 110
Asp Glu Leu Asp Ser Thr Leu Ser Gln Met Leu Gln Asp Pro Asp Tyr
        115                 120                 125
Asp Pro His Gln Arg Glu Ile Pro Lys Arg Thr Arg Lys Ser Asp Gly
    130                 135                 140
Cys
145
```

<210>397
<211>311
<212>PRT
<213>Chlamydia trachomatis
<400>397

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Met Leu Ser Cys Ile Phe Gln Asp Thr Ile Phe Leu Ser Ser Phe Leu
  1               5                  10                  15
Ala Val Ser Leu Ile Cys Met Thr Thr Ala Leu Trp Gly Thr Ile Leu
            20                  25                  30
Leu Val Glu Arg Gln Pro Leu Leu Ser Glu Ser Leu Ser His Ala Cys
        35                  40                  45
Tyr Pro Gly Leu Leu Ile Gly Ala Leu Leu Ser Tyr Lys Val Pro Ala
    50                  55                  60
Phe Ser Asp Ser Leu Trp Val Ile Ile Phe Phe Gly Cys Leu Ala Ser
65                  70                  75                  80
Val Leu Gly Cys Leu Gly Ile Ser Phe Leu Glu Lys Lys Leu Ala Met
                85                  90                  95
```

```
His Lys Asp Ser Ala Leu Cys Leu Val Leu Val Ser Phe Phe Gly Val
            100                 105                 110
Gly Val Ile Leu Val Ser Tyr Val Lys Asp Cys Cys Pro Leu Leu Tyr
        115                 120                 125
Asn Lys Ile Asn Ala Tyr Leu Tyr Gly Gln Ala Ala Thr Leu Gly Tyr
    130                 135                 140
Thr Glu Ala Lys Leu Ala Leu Ile Ile Phe Cys Leu Ser Ala Val Val
145                 150                 155                 160
Leu Trp Trp Trp Tyr Arg Gln Ile Ser Val Ala Ile Phe Asp Arg Glu
                165                 170                 175
Phe Ala Tyr Ser Cys Gly Leu Arg Thr Arg Thr Ala Glu Leu Val Val
            180                 185                 190
Leu Val Phe Ile Ser Leu Val Ile Val Ser Gly Val Arg Ser Val Gly
        195                 200                 205
Ile Leu Leu Ile Ser Ala Met Phe Val Ala Pro Pro Leu Ser Ala Arg
    210                 215                 220
Gln Leu Ser Asp Arg Leu Ser Thr Ile Leu Ile Leu Ser Ser Ile Phe
225                 230                 235                 240
Gly Gly Ile Cys Gly Ala Leu Gly Cys Tyr Phe Ser Val Ala Phe Thr
                245                 250                 255
Cys Gln Thr Val Val Glu Gly Lys Pro Ile Ser Ile Ile Leu Pro Thr
            260                 265                 270
Gly Pro Leu Val Val Phe Phe Ala Gly Val Leu Val Phe Leu Cys Leu
        275                 280                 285
Ile Phe Ser Trp Lys Thr Gly Trp Ile Thr Arg Tyr Phe Arg Arg Lys
    290                 295                 300
Met Val Leu Ile Phe Ser Arg
305                 310
<210>398
<211>261
<212>PRT
<213>Chlamydia trachomatis
<400>398
Leu Phe Leu Asn Arg Asp Asn Ala Ile Ala Trp Ser Val Glu Asp Leu
  1                 5                  10                  15
Cys Val Asn Tyr Asp His Ser Asp Val Leu Cys His Ile Thr Phe Ser
             20                  25                  30
Leu Pro Ala Gly Asp Leu Ala Ala Ile Ile Gly Pro Asn Gly Ala Gly
         35                  40                  45
Lys Ser Thr Leu Leu Lys Ala Ser Leu Gly Leu Ile Arg Ala Ser Ser
     50                  55                  60
Gly Gln Ser Leu Phe Phe Gly Gln Arg Phe Ser Lys Ala His His Arg
 65                  70                  75                  80
Ile Ala Tyr Met Pro Gln Arg Ala Ser Val Asp Trp Asp Phe Pro Met
                 85                  90                  95
Thr Val Leu Asp Leu Val Leu Met Gly Cys Tyr Gly Tyr Lys Gly Ile
            100                 105                 110
Trp Asn Arg Ile Ser Thr Asp Asp Arg Gln Glu Ala Met Arg Ile Leu
        115                 120                 125
Glu Arg Val Gly Leu Glu Ala Phe Ala Asn Arg Gln Ile Gly Lys Leu
    130                 135                 140
Ser Gly Gly Gln Gln Gln Arg Ala Phe Leu Ala Arg Ser Leu Met Gln
145                 150                 155                 160
Lys Ala Asp Leu Tyr Leu Met Asp Glu Leu Phe Ser Ala Ile Asp Met
                165                 170                 175
Ala Ser Tyr Gln Met Val Val Asp Val Leu Gln Glu Leu Lys Ser Glu
            180                 185                 190
Gly Lys Thr Ile Val Val Ile His His Asp Leu Ser Asn Val Arg Lys
        195                 200                 205
Leu Phe Asp His Val Ile Leu Leu Asn Lys His Leu Val Cys Ser Gly
    210                 215                 220
```

Ser Val Glu Glu Cys Leu Thr Lys Glu Ala Ile Phe Gln Ala Tyr Gly
225 230 235 240
Cys Glu Leu Glu Leu Leu Asp Tyr Thr Leu Lys Leu Ser Arg Gly Lys
245 250 255
Tyr Gln Gly Ser Cys
260

<210>399
<211>348
<212>PRT
<213>Chlamydia trachomatis
<400>399
Leu Ser Leu Arg Gly Ser Tyr Thr Phe Ser Lys Tyr Gly Pro Arg Ile
1 5 10 15
Asp Tyr Leu Glu Ala Leu Met Ser Phe Phe His Thr Arg Lys Tyr Lys
20 25 30
Leu Ile Leu Arg Gly Leu Leu Cys Leu Ala Gly Cys Phe Leu Met Asn
35 40 45
Ser Cys Ser Ser Ser Arg Gly Asn Gln Pro Ala Asp Glu Ser Ile Tyr
50 55 60
Val Leu Ser Met Asn Arg Met Ile Cys Asp Cys Val Ser Arg Ile Thr
65 70 75 80
Gly Asp Arg Val Lys Asn Ile Val Leu Ile Asp Gly Ala Ile Asp Pro
85 90 95
His Ser Tyr Glu Met Val Lys Gly Asp Glu Asp Arg Met Ala Met Ser
100 105 110
Gln Leu Ile Phe Cys Asn Gly Leu Gly Leu Glu His Ser Ala Ser Leu
115 120 125
Arg Lys His Leu Glu Gly Asn Pro Lys Val Phe Asp Phe Gly Gln Arg
130 135 140
Leu Leu Asn Lys Asn Cys Phe Asp Leu Leu Ser Glu Glu Gly Phe Pro
145 150 155 160
Asp Pro His Ile Trp Thr Asp Met Arg Val Trp Gly Ala Ala Val Lys
165 170 175
Glu Val Ala Ala Ala Leu Ile Gln Gln Phe Pro Gln Tyr Glu Glu Asp
180 185 190
Phe Gln Lys Asn Ala Asp Gln Ile Leu Ser Glu Met Glu Glu Leu Asp
195 200 205
Arg Trp Ala Val Arg Ser Leu Ser Thr Ile Pro Glu Lys Asn Arg Tyr
210 215 220
Leu Val Thr Gly His Asn Ala Phe Ser Tyr Phe Thr Arg Arg Tyr Leu
225 230 235 240
Ser Ser Asp Ala Glu Arg Val Ser Gly Glu Trp Arg Ser Arg Cys Ile
245 250 255
Ser Pro Glu Gly Leu Ser Pro Glu Ala Gln Ile Ser Ile Arg Asp Ile
260 265 270
Met Arg Val Val Glu Tyr Ile Ser Ala Asn Asp Val Glu Val Val Phe
275 280 285
Leu Glu Asp Thr Leu Asn Gln Asp Ala Leu Arg Lys Ile Val Ser Cys
290 295 300
Ser Lys Ser Gly Gln Lys Ile Arg Leu Ala Lys Ser Pro Leu Tyr Ser
305 310 315 320
Asp Asn Val Cys Asp Asn Tyr Phe Ser Thr Phe Gln His Asn Val Arg
325 330 335
Thr Ile Thr Glu Glu Leu Gly Gly Thr Val Leu Glu
340 345

<210>400
<211>99
<212>PRT
<213>Chlamydia trachomatis
<400>400
Leu Thr Ile Thr Ile Asn Lys Ala Lys Thr Thr Ile Cys Arg Thr Arg

```
  1               5                  10                  15
Leu Pro Thr Lys Glu Leu Phe Met Ala Thr Ala Gln Ile Thr Ile Gln
            20                  25                  30
Glu Glu Ile Glu Gln Leu Ile Thr Lys Ala Ile Ser Lys Val Gly Gly
        35                  40                  45
Ser Lys Glu Asn Asp Leu Cys Arg Tyr Leu Pro Gly Pro Thr Gly Gly
    50                  55                  60
Tyr Met His His Phe Thr Leu Lys Lys Met Lys Asn Ser Ala Pro Glu
65                  70                  75                  80
Gln Leu Leu Lys Asn Val Lys Asp Val Cys Asp Arg Phe Tyr His Ser
                85                  90                  95
Gln Ile His
```

<210>401
<211>529
<212>PRT
<213>Chlamydia trachomatis
<400>401

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Asn Met Thr Gln Thr Ala Glu Lys Pro Phe Gly Lys Leu Arg Ser Phe
  1               5                  10                  15
Leu Trp Pro Ile His Met His Glu Leu Lys Lys Val Leu Pro Met Phe
            20                  25                  30
Leu Met Phe Phe Cys Ile Ser Phe Asn Tyr Thr Ile Leu Arg Asp Thr
        35                  40                  45
Lys Asp Thr Leu Ile Val Thr Ala Pro Gly Ser Gly Ala Glu Ala Ile
    50                  55                  60
Pro Phe Ile Lys Leu Trp Leu Val Val Pro Ser Ala Val Val Phe Met
65                  70                  75                  80
Leu Ile Tyr Ala Lys Leu Ser Asn Ile Leu Asn Lys Gln Ala Leu Phe
                85                  90                  95
Phe Ala Val Leu Ser Pro Phe Val Val Phe Phe Ala Leu Phe Pro Val
            100                 105                 110
Val Ile Tyr Pro Cys Arg His Ile Leu His Pro Thr Ala Phe Ala Asp
        115                 120                 125
Thr Leu Gln Ser Ile Leu Pro Ser Gly Phe Met Gly Phe Ile Ala Met
    130                 135                 140
Leu Arg Asn Trp Thr Phe Ala Val Phe Tyr Val Leu Ser Glu Leu Trp
145                 150                 155                 160
Gly Ser Val Met Leu Ser Leu Met Phe Trp Gly Phe Ala Asn Glu Ile
                165                 170                 175
Thr Lys Ile Ser Glu Ala Lys Arg Phe Tyr Ala Leu Phe Gly Val Gly
            180                 185                 190
Ala Asn Val Ala Leu Leu Ile Ser Gly Pro Ala Ile Ile Trp Ser Ser
        195                 200                 205
Lys Leu Arg Ala Ser Leu Gly Glu Gly Val Asp Pro Trp Gly Val Ser
    210                 215                 220
Leu Tyr Phe Leu Met Ala Met Phe Leu Cys Ser Cys Ala Ile Ile Ala
225                 230                 235                 240
Ala Cys Tyr Trp Trp Met Asn Arg Tyr Val Leu Thr Asp Pro Arg Phe
                245                 250                 255
Tyr Asn Pro Ala Glu Leu Lys Ala Lys Lys Ser Lys Pro Lys Met Ser
            260                 265                 270
Met Gly Glu Ser Phe Ser Tyr Leu Leu Arg Ser Pro Tyr Met Leu Leu
        275                 280                 285
Leu Ala Leu Leu Val Ile Cys Tyr Gly Ile Cys Ile Asn Leu Val Glu
    290                 295                 300
Val Thr Trp Lys Ser Gln Leu Lys Met Gln Phe Pro Asn Pro Asn Asp
305                 310                 315                 320
Tyr Ser Ala Phe Met Gly Asn Phe Ser Phe Trp Thr Gly Val Val Ser
                325                 330                 335
Val Phe Val Met Leu Phe Ile Gly Gly Asn Val Ile Arg Arg Phe Gly
```

```
            340                 345                 350
Trp Leu Thr Gly Ala Leu Val Thr Pro Ile Met Val Leu Val Thr Gly
        355                 360                 365
Ala Val Phe Phe Ala Leu Val Ile Phe Arg Asp His Ala Thr Gly Leu
    370                 375                 380
Val Ala Ala Leu Gly Thr Thr Pro Leu Met Leu Ala Val Val Val Gly
385                 390                 395                 400
Ala Ile Gln Asn Ile Leu Ser Lys Ser Thr Lys Tyr Ala Leu Phe Asp
                405                 410                 415
Ala Thr Lys Glu Leu Ala Tyr Ile Pro Leu Asp Gln Glu Gln Lys Val
            420                 425                 430
Lys Gly Lys Ala Ala Ile Asp Val Val Ala Ala Arg Phe Gly Lys Ser
        435                 440                 445
Gly Gly Ser Leu Ile Gln Gln Gly Leu Leu Val Val Cys Gly Ser Ile
    450                 455                 460
Gly Ala Met Thr Pro Phe Leu Ala Val Ala Leu Phe Ala Ile Ile Met
465                 470                 475                 480
Val Trp Leu Thr Ser Ala Thr Lys Leu Asn Lys Leu Phe Leu Ala Ala
                485                 490                 495
Ser Ala Ala Lys Glu Gln Glu Leu Xaa Glu Ala Ala Ala Ala Glu Lys
            500                 505                 510
Glu Ala Ser Ser Ala Ala Lys Glu Ser Ala Pro Ala Ile Glu Gly Val
        515                 520                 525
Ser
```

09/10/2002 10:30:00

<210>402
<211>395
<212>PRT
<213>Chlamydia trachomatis
<400>402

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Thr Arg Leu Lys Thr Leu Lys Pro Tyr Lys Ile Glu Asn Ile Arg Asn
  1                 5                  10                  15
Phe Ser Ile Ile Ala His Ile Asp His Gly Lys Ser Thr Ile Ala Asp
            20                  25                  30
Arg Leu Leu Glu Ser Thr Ser Thr Ile Glu Gln Arg Glu Met Arg Glu
        35                  40                  45
Gln Leu Leu Asp Ser Met Asp Leu Glu Arg Glu Arg Gly Ile Thr Ile
    50                  55                  60
Lys Ala His Pro Val Thr Met Thr Tyr Glu Tyr Glu Gly Glu Thr Tyr
65                  70                  75                  80
Glu Leu Asn Leu Ile Asp Thr Pro Gly His Val Asp Phe Ser Tyr Glu
                85                  90                  95
Val Ser Arg Ser Leu Ala Ala Cys Glu Gly Ala Leu Leu Ile Val Asp
            100                 105                 110
Ala Ala Gln Gly Val Gln Ala Gln Ser Leu Ala Asn Val Tyr Leu Ala
        115                 120                 125
Leu Glu Arg Asp Leu Glu Ile Ile Pro Val Leu Asn Lys Ile Asp Leu
    130                 135                 140
Pro Ala Ala Gln Pro Glu Ala Ile Lys Lys Gln Ile Glu Glu Phe Ile
145                 150                 155                 160
Gly Leu Asp Thr Ser Asn Thr Ile Ala Cys Ser Ala Lys Thr Gly Gln
                165                 170                 175
Gly Ile Pro Glu Ile Leu Glu Ser Ile Ile Arg Leu Val Pro Pro Pro
            180                 185                 190
Lys Pro Pro Gln Glu Thr Glu Leu Lys Ala Leu Ile Phe Asp Ser His
        195                 200                 205
Tyr Asp Pro Tyr Val Gly Ile Met Val Tyr Val Arg Val Ile Ser Gly
    210                 215                 220
Glu Ile Lys Lys Gly Asp Arg Ile Thr Phe Met Ala Thr Lys Gly Ser
225                 230                 235                 240
Ser Phe Glu Val Leu Gly Ile Gly Ala Phe Leu Pro Glu Ala Thr Leu
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                245                 250                 255
Met Glu Gly Ser Leu Arg Ala Gly Gln Val Gly Tyr Phe Ile Ala Asn
            260                 265                 270
Leu Lys Lys Val Lys Asp Val Lys Ile Gly Asp Thr Val Thr Thr Val
        275                 280                 285
Lys His Pro Ala Lys Glu Pro Leu Glu Gly Phe Lys Glu Ile Lys Pro
    290                 295                 300
Val Val Phe Ala Gly Ile Tyr Pro Ile Asp Ser Ser Asp Phe Asp Thr
305                 310                 315                 320
Leu Lys Asp Ala Leu Gly Arg Leu Gln Leu Asn Asp Ser Ala Leu Thr
                325                 330                 335
Ile Glu Gln Glu Ser Ser His Ser Leu Gly Phe Gly Phe Arg Cys Gly
            340                 345                 350
Phe Leu Gly Leu Leu His Leu Glu Ile Ile Phe Glu Arg Ile Ser Arg
        355                 360                 365
Glu Phe Asp Leu Asp Ile Ile Ala Thr Ala Pro Ser Val Ile Tyr Lys
    370                 375                 380
Val Val Leu Lys Asn Gly Lys Thr Leu Phe Ile
385                 390                 395
<210>403
<211>228
<212>PRT
<213>Chlamydia trachomatis
<400>403
Arg Tyr Leu Gln Ser Arg Leu Lys Lys Trp Gln Asn Pro Phe Tyr Leu
  1                 5                  10                  15
Ile Thr Gln Gln His Ile Leu Thr Gln Leu Leu Leu Asn Thr Trp Lys
             20                  25                  30
Ser Leu Gly Ser Ile Val Asn Ile Ile Thr Pro Gln Glu Tyr Leu Ser
         35                  40                  45
Asn Ile Met Ser Leu Cys Met Asp Lys Arg Gly Ile Cys Leu Lys Thr
     50                  55                  60
Asp Met Leu Asp Gln His Arg Leu Val Leu Ser Tyr Glu Leu Pro Leu
 65                  70                  75                  80
Asn Glu Ile Val Ser Asp Phe Asn Asp Lys Leu Lys Ser Val Thr Lys
                 85                  90                  95
Gly Tyr Gly Ser Phe Asp Tyr Arg Leu Gly Asp Tyr Lys Lys Gly Ala
            100                 105                 110
Ile Ile Lys Leu Glu Ile Leu Ile Asn Asp Glu Ala Val Asp Ala Phe
        115                 120                 125
Ser Cys Leu Val His Arg Asp Lys Ala Glu Ser Lys Gly Arg Ser Ile
    130                 135                 140
Cys Glu Lys Leu Val Asp Val Ile Pro Pro Gln Leu Phe Lys Ile Pro
145                 150                 155                 160
Ile Gln Ala Ala Ile Asn Lys Lys Ile Ile Ala Arg Glu Thr Ile Arg
                165                 170                 175
Ala Leu Ala Lys Asn Val Thr Ala Lys Cys Tyr Gly Gly Asp Ile Thr
            180                 185                 190
Arg Lys Arg Lys Leu Trp Asp Lys Gln Lys Lys Gly Lys Lys Arg Met
        195                 200                 205
Lys Glu Phe Gly Lys Val Ser Ile Pro Asn Thr Ala Phe Val Glu Val
    210                 215                 220
Leu Lys Met Glu
225
<210>404
<211>160
<212>PRT
<213>Chlamydia trachomatis
<400>404
Phe Glu Asp Val Arg Glu Ala Leu Tyr Ala Ala Lys Ile Ile Ser Tyr
  1                 5                  10                  15
```

```
Ala Gln Gly Phe Met Leu Leu Lys Gln Val Ser Gln Asp Lys Gly Trp
            20                  25                  30
Asp Leu Asn Leu Gly Glu Leu Ala Leu Ile Trp Arg Gly Gly Cys Ile
        35                  40                  45
Ile Gln Ser Ala Phe Leu Asp Lys Ile His Gln Gly Phe Glu Asn Ser
    50                  55                  60
Pro Glu Ala His Ser Leu Ile Leu Gln Asp Tyr Phe Lys Lys Val Leu
65                  70                  75                  80
Phe Asp Ser Glu Thr Gly Phe Arg Arg Ala Val Leu His Ala Ile Gly
                85                  90                  95
Ser Gly Val Ala Ile Pro Cys Leu Ser Ser Ala Leu Ser Phe Tyr Asp
            100                 105                 110
Gly Tyr Arg Thr Val Asp Ser Pro Leu Phe Leu Val Gln Gly Leu Arg
        115                 120                 125
Asp Tyr Phe Gly Ala His Gly Tyr Glu Arg Arg Asp Cys Pro Arg Gly
    130                 135                 140
Glu Phe Tyr His Thr Asp Trp Leu Glu Thr Lys Lys Thr Phe Arg Ala
145                 150                 155                 160
<210>405
<211>322
<212>PRT
<213>Chlamydia trachomatis
<400>405
Glu Gly Ser Val Ala Pro Asn Thr Asp Ile Gly Leu Ile Gly Leu Ala
  1                 5                  10                  15
Val Met Gly Lys Asn Leu Val Leu Asn Met Val Asp His Gly Phe Ser
            20                  25                  30
Val Ser Val Tyr Asn Arg Ser Pro Ala Lys Thr Glu Glu Phe Leu Lys
        35                  40                  45
Asp His Gly Glu Ser Gly Ala Leu Gln Gly Phe Thr Thr Ile Gln Glu
    50                  55                  60
Phe Val Gln Ser Leu Lys Arg Pro Arg Lys Ile Met Ile Met Ile Lys
65                  70                  75                  80
Ala Gly Ala Pro Val Asp Glu Met Ile Ala Ser Leu Leu Pro Phe Leu
                85                  90                  95
Glu Glu Gly Asp Ile Leu Ile Asp Gly Gly Asn Ser Tyr Tyr Leu Asp
            100                 105                 110
Ser Glu Arg Arg Tyr Val Asp Leu Lys Lys Glu Gly Ile Leu Phe Val
        115                 120                 125
Gly Met Gly Val Ser Gly Gly Glu Glu Gly Ala Arg Lys Gly Pro Ser
    130                 135                 140
Ile Met Pro Gly Gly Asn Ile Asp Ala Trp Pro Ala Ile Ala Pro Ile
145                 150                 155                 160
Phe Gln Ser Ile Ala Ala Gln Val Gly Gly Arg Pro Cys Cys Ser Trp
                165                 170                 175
Ile Gly Thr Gly Gly Ala Gly His Phe Val Lys Ala Val His Asn Gly
            180                 185                 190
Ile Glu Tyr Gly Asp Ile Gln Leu Ile Cys Glu Thr Tyr Glu Ile Leu
200                 205                                         195
Lys Thr Arg Leu Asn Leu Ser Leu Glu Gln Ile Gly Asn Ile Phe Phe
    210                 215                 220
Glu Trp Asn Gln Thr Asp Leu Asn Ser Tyr Leu Leu Gly Ala Ala Ala
225                 230                 235                 240
Ala Val Leu Ile Ala Lys Asp Glu Asn Gly Asn Ala Ile Ala Ser Thr
                245                 250                 255
Ile Leu Asp Val Ala Gly Gln Lys Gly Thr Gly Arg Trp Val Ala Glu
            260                 265                 270
Asp Ala Ile Lys Ala Gly Val Pro Met Ser Leu Ile Ile Glu Ser Val
        275                 280                 285
Leu Ala Arg Tyr Leu Ser Thr Trp Lys Glu Val Arg Thr Lys Ala Ala
    290                 295                 300
```

```
Gln Glu Phe Pro Gly Phe Leu Phe Xaa Val Asn Leu His Lys Lys Leu
305                 310                 315                 320
Leu Pro

<210>406
<211>451
<212>PRT
<213>Chlamydia trachomatis
<400>406
Ile Phe Met Gln Gln Leu Ile Asp Asn Leu Lys Lys Arg Gly Ile Leu
  1               5                  10                  15
Asp Asn Ser Ser Ala Gly Leu Glu Ser Leu Thr Val Pro Val Ser Ala
            20                  25                  30
Tyr Leu Gly Phe Asp Pro Thr Ala Pro Ser Leu His Ile Gly His Trp
        35                  40                  45
Ile Gly Ile Cys Phe Leu Arg Arg Leu Ala Ala Tyr Gly Ile Thr Pro
    50                  55                  60
Val Ala Leu Val Gly Gly Ala Thr Gly Met Ile Gly Asp Pro Ser Gly
65                  70                  75                  80
Lys Ser Val Glu Arg Ser Leu Leu Asp Gln Ala Gln Val Leu Asp Asn
                85                  90                  95
Ser Lys Lys Ile Ala Ala Ala Leu Ala Ser Tyr Leu Pro Gly Ile Arg
            100                 105                 110
Ile Val Asn Asn Ala Asp Trp Leu Gly Ser Leu Ser Met Val Asp Phe
        115                 120                 125
Leu Arg Asp Val Gly Lys His Phe Arg Leu Gly Ser Met Leu Ala Lys
    130                 135                 140
Asp Val Val Lys Gln Arg Val Tyr Ser Glu Glu Gly Ile Ser Tyr Thr
145                 150                 155                 160
Glu Phe Ser Tyr Leu Leu Leu Gln Ser Tyr Asp Phe Ala His Leu Phe
                165                 170                 175
Lys Glu His Asn Val Val Leu Gln Cys Gly Gly Ser Asp Gln Trp Gly
            180                 185                 190
Asn Ile Thr Ser Gly Ile Asp Tyr Ile Arg Arg Arg Gly Leu Gly Gln
        195                 200                 205
Ala Tyr Gly Leu Thr Tyr Pro Leu Leu Thr Asp Ser Lys Gly Lys Lys
    210                 215                 220
Ile Gly Lys Thr Glu Ser Gly Thr Ile Trp Leu Asp Pro Ala Leu Thr
225                 230                 235                 240
Pro Pro Tyr Glu Leu Phe Gln Tyr Phe Leu Arg Leu Pro Asp Gln Glu
                245                 250                 255
Ile Ser Lys Val Met Arg Thr Leu Thr Leu Leu Asp Asn Glu Glu Val
            260                 265                 270
Phe Ala Leu Asp Glu Arg Leu Thr Ser Asp Pro Gln Ala Val Lys Xaa
        275                 280                 285
Tyr Ile Ala Glu Val Ile Val Lys Asp Val His Gly Ser Glu Gly Leu
    290                 295                 300
Ala Gln Ala Gln Ala Ala Thr Glu Ser Phe Phe Ala Ser Lys Gly Lys
305                 310                 315                 320
Ser Ile Thr Glu Ala Glu Leu Val Ala Leu Val Glu Ser Gly Val Gly
                325                 330                 335
Val Lys Val Ala Arg Ala Asp Leu Ile Gly Lys Arg Trp Leu Asp Ile
            340                 345                 350
Val Val Glu Leu Gly Phe Cys Ser Ser Arg Gly Gln Ala Arg Arg Leu
        355                 360                 365
Ile Gln Gln Arg Gly Leu Tyr Ile Asn Gln Glu Pro Leu Ala Asp Glu
    370                 375                 380
Gln Ser Ile Leu Asp Gly Thr Gln Leu Cys Phe Asp Arg Tyr Val Leu
385                 390                 395                 400
Leu Ser Gln Gly Lys Arg Lys Lys Gln Val Ile Asp Leu Lys Leu Gly
                405                 410                 415
```

```
Gly Val Cys Gly Ser Lys Tyr Arg Tyr Trp Val Asp Trp Phe Gly Arg
            420                 425                 430
Asp Gly Gln Lys Pro Cys Ile Glu His Gly Gly Ser Trp Phe Phe Cys
        435                 440                 445
Phe Cys Leu
    450
<210>407
<211>260
<212>PRT
<213>Chlamydia trachomatis
<400>407
Phe Val Lys Glu Ile Phe Phe Val Lys Thr His Asp Leu Ala Asp Thr
  1               5                  10                  15
Trp Gln Leu Tyr Trp Ser Thr Lys Glu Ile His His Arg Asp Val Leu
             20                  25                  30
Ile Glu Ser Tyr Leu Pro Leu Val Lys Asn Val Ala His Arg Leu Ala
         35                  40                  45
Ser Gly Met Pro Ser His Val Lys Met Glu Asp Leu Tyr Ala Leu Gly
     50                  55                  60
Val Glu Gly Leu Ile Arg Ala Val Glu Arg Phe Asp Pro Glu Lys Ser
 65                  70                  75                  80
Lys Arg Phe Glu Ser Tyr Ala Leu Phe Ile Ile Lys Ala Ala Ile Ile
                 85                  90                  95
Asp Gly Leu Arg Lys Gln Asp Trp Val Pro Arg Ser Val Tyr Gln Arg
            100                 105                 110
Ala Asn Arg Leu Ala Asp Ala Met Asp Ser Leu Arg Gln Thr Leu Gly
        115                 120                 125
Lys Glu Pro Thr Asp Gly Glu Leu Cys Glu Tyr Leu Asn Ile Ser Gln
    130                 135                 140
Gln Glu Leu Ser His Trp Phe Ser Ser Ser Arg Pro Ala Leu Val Leu
145                 150                 155                 160
Ser Leu Asn Asp Asp Phe Ser Cys Gln Asp Asp Asp Glu Gly Leu Ala
                165                 170                 175
Leu Glu Glu Arg Ile Ala Asp Glu Arg Ala Glu Thr Gly Tyr Asp Val
            180                 185                 190
Ile Arg Lys Lys Glu Ala Ile Ser Ile Leu Thr Glu Ala Leu Leu Ala
        195                 200                 205
Leu Asp Glu Lys Glu Arg Gln Val Met Ala Leu Tyr Tyr Tyr Asp Asp
    210                 215                 220
Leu Val Leu Lys Glu Ile Gly Lys Ile Leu Gly Val Ser Glu Ser Arg
225                 230                 235                 240
Val Ser Gln Ile His Ser Lys Ala Leu Leu Lys Leu Arg Gly Thr Leu
                245                 250                 255
Ser Ser Leu Leu
            260
<210>408
<211>130
<212>PRT
<213>Chlamydia trachomatis
<400>408
Met Tyr Met Ala Leu Lys Ser Lys Asn Ser Gln Glu Leu Val Glu Cys
  1               5                  10                  15
Val Arg Lys Tyr Leu Gly Lys Gln Ile Gly Leu Ser Leu Trp Asn Arg
             20                  25                  30
Gln Asp Val Leu Glu Val Ile Thr Ile Asp Ser Leu Val Glu Gln Phe
         35                  40                  45
Val Arg Asp Ser Gln Glu Lys Val Val Leu Asp Leu Asn Glu Lys Val
     50                  55                  60
Val Ala Gln Val Lys His Leu Leu Arg Val Gly Glu Gly Asn Phe Arg
 65                  70                  75                  80
Ala Ile Val Thr Gly Ser Glu Thr Arg Lys Glu Leu Lys Arg Ile Val
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                  85                  90                  95
Asp Pro Tyr Phe Pro Asp Leu Leu Val Leu Ala His Ser Glu Leu Pro
             100                 105                 110
Glu Glu Ile Pro Ile Thr Leu Leu Gly Ala Val Ser Asp Glu Val Leu
         115                 120                 125
Leu Ser
     130
<210>409
<211>397
<212>PRT
<213>Chlamydia trachomatis
<400>409
Gly Ile Ser Phe Pro Leu Gly Ala Ser Arg Leu Ala Leu Thr Val Cys
  1               5                  10                  15
Leu Leu Leu Phe Leu Val Asn Phe Leu Val Ile Thr Lys Gly Ala Glu
             20                  25                  30
Arg Ile Ala Glu Val Arg Ala Arg Phe Ser Leu Glu Ala Leu Pro Gly
         35                  40                  45
Lys Gln Met Ser Leu Asp Ala Asp Ile Ala Ala Gly Arg Ile Gly Tyr
     50                  55                  60
Ser Arg Ala Ser Val Lys Lys Ser Ser Leu Leu Glu Glu Ser Asp Tyr
 65                  70                  75                  80
Phe Ser Ala Met Glu Gly Val Phe Arg Phe Val Lys Gly Asp Ala Ile
                 85                  90                  95
Met Ser Trp Val Leu Leu Gly Val Asn Ile Leu Ala Ala Leu Phe Leu
             100                 105                 110
Gly Arg Ala Thr His Val Gly Asp Leu Trp Leu Thr Val Leu Gly Asp
         115                 120                 125
Ala Leu Val Ser Gln Ile Pro Ala Leu Leu Thr Ser Cys Ala Ala Ala
     130                 135                 140
Thr Leu Ile Ala Lys Val Gly Glu Lys Glu Ser Leu Ala Gln His Leu
145                 150                 155                 160
Leu Asp Tyr Tyr Glu Gln Ser Arg Gln Ser Phe Leu Phe Ile Ala Leu
                165                 170                 175
Ile Leu Cys Gly Met Ala Cys Ile Pro Gly Ala Pro Lys Ala Leu Ile
             180                 185                 190
Leu Gly Phe Ser Val Leu Leu Phe Leu Gly Tyr Lys Asn Pro Ser Ser
         195                 200                 205
Gly Glu Thr Leu Leu Phe Gln Lys Glu Arg Val Glu Phe Val Leu Pro
     210                 215                 220
Asp Glu Gly Val Gly Asn Pro Ala Asn Leu Tyr Lys Asp Ala Arg Asn
225                 230                 235                 240
Gln Ile Tyr Gln Glu Leu Gly Val Val Phe Pro Glu Ala Ile Val Val
                245                 250                 255
Arg Tyr Val Thr Gly Ser Ser Pro Arg Leu Ile Phe Ser Gly Gln Glu
             260                 265                 270
Val Ala Leu Arg Glu Leu Ser Cys Pro Ala Ile Leu Glu Ser Ile Arg
         275                 280                 285
Gln Leu Ala Pro Glu Thr Ile Ser Glu Arg Phe Val Ala His Leu Val
     290                 295                 300
Asp Glu Phe Arg Glu His Ala Phe Leu Ser Ile Glu Glu Ile Leu Pro
305                 310                 315                 320
Leu Lys Ile Ser Glu Asn Ser Leu Ile Phe Leu Leu Arg Ala Leu Val
                325                 330                 335
Arg Glu Arg Val Ser Leu His Leu Phe Pro Lys Ile Leu Glu Ala Ile
             340                 345                 350
Asp Val Tyr Gly Ser Gln Ile Lys Glu Phe Ser Gly Ile Gly Arg Val
         355                 360                 365
Cys Thr Lys Ile Ser Trp Glu Ala Asn Trp Phe Ile Leu Met Glu Ser
     370                 375                 380
Pro Arg Cys Leu Arg Gly Asn Tyr Asp Arg Leu Ser Gly
```

20020164690

385 390 395

<210>410
<211>82
<212>PRT
<213>Chlamydia trachomatis
<400>410

```
Met Ala Lys Leu Ile Ile Ser Ala Asp Asp Glu Asn Gln Glu Phe His
  1               5                  10                  15
Leu Glu Asp Gly Ser Ser Ile Ala Glu Val Cys Glu His Ser Gly Val
             20                  25                  30
Pro Phe Ala Cys Met Glu Gly Val Cys Gly Thr Cys Val Ile Glu Val
         35                  40                  45
Leu Glu Gly Ala Asp Asn Leu Ser Asp Phe Ser Glu Ala Glu Tyr Asp
     50                  55                  60
Phe Leu Gly Asp Pro Glu Asp Ser Asn Glu Arg Leu Ala Cys Gln Met
 65                  70                  75                  80
Leu His
```

<210>411
<211>365
<212>PRT
<213>Chlamydia trachomatis
<400>411

```
Glu Phe Met Phe Thr Ser Leu Ser Ala Ile Gln Asn Ala Ile Arg Pro
  1               5                  10                  15
Ser Cys Gln Leu Pro Val Leu Thr Pro Arg Arg Ala Leu Ile Thr Ser
             20                  25                  30
Leu Ala Ser Gly Ile Ile Leu Gly Leu Ala Gly Cys Val Val Gly Val
         35                  40                  45
Leu Ala Ser Leu Pro Ala Leu Ile Ala Val Ser Ala Val Ile Leu Gly
     50                  55                  60
Val Ser Leu Phe Ala Ser Gly Leu Phe Leu Cys Arg Tyr Val Cys Pro
 65                  70                  75                  80
Pro Lys Ile Val Ser Arg Arg Pro Ser Thr Glu Leu Pro Ala Glu Pro
                 85                  90                  95
Thr Pro Glu Leu Pro Glu Ile Lys Arg Pro Lys Pro Ile Ala Pro Pro
            100                 105                 110
Pro Pro Asp Phe Ile Pro Pro Lys Pro Leu Arg Arg Thr Ile Gly Glu
        115                 120                 125
Met Leu Phe Gly Trp Asn Cys Ile Glu Ser Ile Arg Gln Met Pro Phe
    130                 135                 140
Phe Leu Ala Asn Asp Lys Thr Pro Leu Phe Phe Arg Asn Pro Ser Ala
145                 150                 155                 160
Arg Phe Arg Ala Trp Asn Ile Pro Phe Thr His Thr Ile Phe Val Ser
                165                 170                 175
Thr Ser Gly Gln Phe Ser Ser Leu Arg Met Gln Ser Asn Leu Pro Ala
            180                 185                 190
Ala Ile Ala Asn Ala Thr Gln Ser Ala Ala Phe Ala Lys Arg Gly Gln
        195                 200                 205
Gly Gly Leu Gly Val Asn Asp Ala Phe Pro Ala Val Leu Thr Asp Lys
    210                 215                 220
Cys Trp Glu Glu Ser Lys Pro Glu Ser Gly Ile Leu Leu Pro Gly Glu
225                 230                 235                 240
Cys Ser Ser Ala Thr Trp Glu Asp Lys Asn His Leu Val Pro Cys Trp
                245                 250                 255
Asp Glu Glu Thr Lys Thr Tyr Asn Lys Pro Leu Leu Phe Ile Gln Met
            260                 265                 270
Leu Ala Pro Lys Ala Ser Met Ser Lys Ser Cys Tyr Glu Ile Thr Leu
        275                 280                 285
Arg Ala Tyr Thr Ala Cys Phe Glu Glu Ala Ile Arg Cys Gly Cys Arg
    290                 295                 300
```

```
Met Ile Gln Ile Pro Leu Ile Ala Ser Phe Gly Asp Phe Val Pro Arg
305                 310                 315                 320
Ala Leu Ser Lys Arg Pro Lys Trp Ile Glu Ser Ala Lys Leu Ala Leu
                325                 330                 335
Leu His Ala Val Glu Lys Thr Ala Lys Lys His Ala Ser Lys Asp Leu
            340                 345                 350
Val Ile Val Leu Thr Asn Ile Pro Gln Pro Val Asn Leu
        355                 360                 365
<210>412
<211>611
<212>PRT
<213>Chlamydia trachomatis
<400>412
Gln Lys Leu Phe Val Gly His Leu Val Met Ala Thr Pro Cys Ile Gln
  1               5                  10                  15
Asn Ala Phe Arg Arg Lys Thr Leu Pro Val Arg Ile Gly Asp Leu Phe
            20                  25                  30
Val Gly Ser Glu His Ser Ile Lys Ile Gln Ser Met Thr Thr Thr Ala
        35                  40                  45
Thr Thr Asp Val Asp Gly Thr Val Arg Gln Ile Cys Ala Leu Gln Glu
    50                  55                  60
Leu Gly Cys Asp Ile Val Arg Val Thr Val Gln Gly Leu Arg Glu Val
65                  70                  75                  80
His Ala Cys Glu His Ile Lys Asp Arg Leu Ile Gln Gln Asn Ile Ser
                85                  90                  95
Ile Pro Leu Val Ala Asp Ile His Phe Phe Pro Gln Ala Ala Ile His
            100                 105                 110
Val Val Asp Cys Val Asp Lys Val Arg Ile Asn Pro Gly Asn Tyr Val
        115                 120                 125
Asp Lys Arg Asn Met Phe Thr Gly Lys Ile Tyr Ser Asp Glu Gln Tyr
    130                 135                 140
Ala His Ser Leu Glu His Leu Met Asn Lys Phe Ser Pro Leu Val Glu
145                 150                 155                 160
Lys Cys Lys Arg Leu Gly Lys Ala Met Arg Ile Gly Val Asn His Gly
                165                 170                 175
Ser Leu Ser Glu Arg Val Thr Gln Arg Tyr Gly Asn Thr Ile Glu Gly
            180                 185                 190
Met Val Tyr Ser Ala Leu Glu Tyr Ala Glu Val Cys Val Ala Met Asp
        195                 200                 205
Tyr His Asp Val Ile Phe Ser Met Lys Ser Ser Asn Pro Lys Val Met
    210                 215                 220
Val Ala Ala Tyr Arg Ser Leu Ala Tyr Glu Leu Asp Gln Arg Glu Trp
225                 230                 235                 240
Ser Tyr Pro Leu His Leu Gly Val Thr Glu Ala Gly Ser Gly Thr Ala
                245                 250                 255
Gly Ile Val Lys Ser Ala Val Gly Ile Gly Thr Leu Leu Ser Glu Gly
            260                 265                 270
Leu Gly Asp Thr Ile Arg Cys Ser Leu Thr Gly Ser Pro Ile Asn Glu
        275                 280                 285
Ile Pro Ile Cys Ile Asp Leu Leu Lys Gln Thr Thr Glu Leu Ser Glu
    290                 295                 300
Arg Trp Gly Glu Ala Asp Asn Pro Phe Ala Ile His Ser Ser Lys Gln
305                 310                 315                 320
Leu Gly Thr Arg Asn Thr Leu Asn Thr Pro Pro Trp Asp Asn Val Tyr
                325                 330                 335
Gly Leu Leu Ile Asn Leu Thr Asp Val Gln Leu Leu Thr Ala Glu Pro
            340                 345                 350
Ile Glu Leu Leu Gln Cys Leu Gly Ile Asp Thr Thr Thr Gly Lys Ile
        355                 360                 365
Asp Pro Thr Thr Pro Glu Gly Val Val Val Pro Lys Ala Met Arg Ser
    370                 375                 380
```

```
Ser Pro Ile Val Ser Glu Ile Glu Lys His Leu Leu Val Phe Asn Lys
385                 390                 395                 400
Glu Asp Ala Pro Ile Leu Asn Pro Met Asn Glu Glu Glu Trp Leu Ser
                405                 410                 415
Glu Glu Thr Leu Ser Ala Pro Phe Val Tyr Phe Glu Val Thr Asp Ile
            420                 425                 430
His Thr Ala Arg Arg Phe Phe Ser Leu Arg Gln His Ser Thr Gln Pro
        435                 440                 445
Val Cys Leu Ser Phe Ser Leu Asp Pro His Leu Ser Lys Asn Glu Ala
    450                 455                 460
Ile Ile Asp Leu Ser Ala Arg Leu Gly Ala Leu Leu Leu Asp Gly Leu
465                 470                 475                 480
Gly Ser Cys Val Leu Leu Asp Phe Val Asp Ile Lys Leu Ser Arg Thr
                485                 490                 495
Leu Gly Phe Leu Ile Leu Gln Ser Ala Asn Ile Arg Ser Val Thr Val
            500                 505                 510
Glu Tyr Val Ser Cys Pro Gly Cys Gly Arg Thr Leu Phe Asp Leu Leu
        515                 520                 525
Ala Val Ser Gln Arg Ile Arg Glu Arg Thr Lys His Leu Pro Gly Gly
    530                 535                 540
Leu Lys Ile Ala Val Met Gly Cys Ile Val Asn Gly Pro Gly Glu Met
545                 550                 555                 560
Ala Asp Ala Asp Phe Gly Tyr Val Gly Ser Lys Pro Gly Met Ile Asp
                565                 570                 575
Leu Tyr Val Lys His Lys Cys Val Lys Ser Cys Ile Pro Ile Glu Asn
            580                 585                 590
Ala Glu Glu Glu Leu Val Gln Leu Leu Lys Glu His Gly Val Trp Lys
        595                 600                 605
Glu Pro Glu
    610
<210>413
<211>171
<212>PRT
<213>Chlamydia trachomatis
<400>413
Ala Met Arg Val Leu Leu Ile Arg Val Asn Phe Pro Ser Lys His Ile
  1                 5                  10                  15
Thr Leu Ile Tyr Ile Val Ser Trp Ile Asp Thr His Phe Ile Tyr Thr
             20                  25                  30
Ile His Asn Met Tyr Gly Cys Leu Arg Lys Glu Met Asp Ile Cys Tyr
         35                  40                  45
Lys Arg Asp Gly Asn Val Leu Leu Asn Gln Ala Val Phe Asn Val Leu
     50                  55                  60
Ala Cys Met Asn Leu Ser Gln Thr Leu Tyr Arg Asn Thr Asn Asp Val
 65                  70                  75                  80
Ala Thr Gln Leu Leu Gln Ser Thr Asn Leu Ser Asn Arg Ser Ile His
                 85                  90                  95
Ile Cys Gly Gly Cys Ser Arg His Arg Leu Asp Phe Asp Gly Val Leu
            100                 105                 110
Thr Thr Asn Lys Lys Ile Ser Asp Ser Tyr Trp Glu Gly Phe Ala Ser
        115                 120                 125
Lys Arg Ile Leu Tyr Thr Gly Cys Cys His Asp Glu Val Ser Tyr Lys
    130                 135                 140
Gln Phe Leu Lys Leu Ala Gly Thr Val Pro Ala Glu Ser Leu Ser Pro
145                 150                 155                 160
Glu Gly Phe Gly Gly Leu Arg Lys Tyr Lys Leu
                165                 170
<210>414
<211>252
<212>PRT
<213>Chlamydia trachomatis
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<400>414
Met Glu Arg Ala Arg Ile Gly Ser Leu Met Thr Leu Pro Ser Glu Ala
1 5 10 15
Leu Arg Lys Gln Thr Phe Pro Glu Leu Glu Tyr Leu Pro Ile Arg His
20 25 30
Gly Ile Phe Pro Lys Gln Asp Asp Lys Glu Glu Ala Ser Gln Val Ser
35 40 45
Asp Glu Val Ile Ser Ser Ser Leu Gly Gly Asn Asp Phe Cys Asn Ala
50 55 60
Arg Gln Val His Gly Thr Ser Val Arg Tyr Val Thr Pro Lys Thr Pro
65 70 75 80
Lys Arg Ala Pro Ala Asp Gly Leu Phe Thr Thr Thr Pro Leu Leu Ser
85 90 95
Leu His Ile Tyr His Ala Asp Cys Gln Ala Ala Ile Phe Tyr Asp Pro
100 105 110
Glu Asn His Val Ile Ala Asn Val His Ala Gly Trp Arg Gly Leu Val
115 120 125
Gly Asn Ile Tyr Ala Val Thr Val Arg Leu Leu Lys Lys Thr Phe Asn
130 135 140
Thr Arg Pro Gln Asp Leu Ile Val Ala Ile Ser Pro Ser Leu Gly Pro
145 150 155 160
Asp Met Ala Val Tyr Pro Asp Tyr Lys Arg Leu Phe Pro Ser Ser Phe
165 170 175
Phe Pro Leu Met Pro Lys Glu Asn His Leu Asp Phe Arg Ala Val Ala
180 185 190
Arg Lys Gln Leu Leu Ser Glu Gly Leu Ser Ser Asn His Ile Phe Ile
195 200 205
Ser Glu Arg Cys Thr Cys Ser Glu Ser Asn Thr Phe Phe Ser Phe Arg
210 215 220
Ser Trp Lys Ser Arg His Gln Gln Asp Pro Ser Ala Ile Arg Ser Arg
225 230 235 240
Lys Asn Asn Val Thr Ala Val Leu Leu Leu Pro Arg
245 250

<210>415
<211>365
<212>PRT
<213>Chlamydia trachomatis
<400>415
Met Ser Ile Glu Val Arg Ile Pro Asn Ile Ala Glu Ser Ile Ser Glu
1 5 10 15
Val Thr Ile Ser Ala Leu Leu Ile Pro Ser Gly Asp Leu Val Gln Glu
20 25 30
Asn Gln Gly Ile Leu Glu Ile Glu Ser Asp Lys Val Asn Gln Leu Ile
35 40 45
Tyr Ala Pro Cys Ser Gly Arg Val Glu Trp Ser Val Ser Val Gly Asp
50 55 60
Thr Val Ala Val Gly Ser Val Val Gly Ile Ile Ser Glu Ala Glu Lys
65 70 75 80
Ser Gln Asp Thr Ala Pro Ile His Glu Gln Met Pro Phe Ser Leu Val
85 90 95
Glu Gln Glu Ser Asp Ala Gln Ile Ile Ala Phe Pro Ser Ser Val Arg
100 105 110
Gln Asp Pro Pro Ala Glu Gly Lys Thr Phe Val Pro Leu Lys Glu Ile
115 120 125
Gln Pro Ala Ser Ser Asp His Arg Glu Ser Arg Glu Ser Met Ser Ala
130 135 140
Ile Arg Lys Thr Ile Ser Arg Arg Leu Val Gln Ser Leu His Asp Ser
145 150 155 160
Ala Met Leu Thr Thr Phe Asn Glu Ile His Met Gly Pro Leu Ile Ala
165 170 175
Leu Arg Lys Glu Arg Gln Glu Asp Phe Val Ala Lys Tyr Gly Val Lys

```
            180                 185                 190
Leu Gly Phe Met Ser Phe Phe Val Arg Ala Val Val Asp Ser Leu Lys
        195                 200                 205
Lys Tyr Pro Arg Val Asn Ala Tyr Ile Glu Asp Asn Glu Ile Val Tyr
    210                 215                 220
Arg His Tyr Tyr Asp Ile Ser Ile Ala Ile Gly Thr Asp Arg Gly Leu
225                 230                 235                 240
Val Val Pro Val Ile Arg Asn Cys Asp Gln Leu Ser Ser Gly Glu Ile
                245                 250                 255
Glu Leu Gln Leu Ala Asp Leu Ala Ser Arg Ala Arg Glu Gly Lys Leu
            260                 265                 270
Ala Ile His Glu Leu Glu Gly Gly Gly Phe Thr Ile Thr Asn Gly Gly
        275                 280                 285
Val Tyr Gly Ser Leu Leu Ser Thr Pro Ile Ile Asn Pro Pro Gln Val
    290                 295                 300
Gly Ile Leu Gly Met His Lys Ile Glu Lys Arg Pro Val Val Arg Glu
305                 310                 315                 320
Asp Ala Ile Val Ile Ala Asp Met Met Tyr Val Ala Met Ser Tyr Asp
                325                 330                 335
His Arg Ile Ile Asp Gly Lys Glu Ala Val Gly Phe Leu Val Asn Val
            340                 345                 350
Lys Glu Gln Leu Glu Gln Pro Glu Leu Leu Leu Lys Met
        355                 360                 365
<210>416
<211>906
<212>PRT
<213>Chlamydia trachomatis
<400>416
Ile Arg Leu Met Asp Ser Asp Phe Ala Arg His Val His Ser Ser Asp
  1                 5                  10                  15
Ile Asp Trp Ile Glu Ser Leu Phe Glu Arg Phe Glu Lys His Glu Pro
             20                  25                  30
Met Asp Ser Ser Trp Lys Tyr Phe Phe Glu Gly Tyr Gln Val Gly Lys
         35                  40                  45
Thr Glu Gly Ser Pro Thr Glu Ser Ser His Asp Gln Phe Phe Thr Ser
     50                  55                  60
Leu Gln Glu Lys Lys Ala His Ser Leu Leu Met Ile Tyr Arg Tyr Tyr
 65                  70                  75                  80
Gly Tyr Leu Gln Gly Gln Val Ser Pro Ile Ser Ser Ser Glu Glu Ser
                 85                  90                  95
Ser Leu Val Thr Glu Lys Val Arg Asn Phe Asp Pro Gln Glu Glu Ile
            100                 105                 110
Pro Ser Leu Gly Leu Leu Pro Gln Ser Tyr Val Arg Ile Ala Asp Phe
        115                 120                 125
Ile Gln Val Leu Lys Glu Lys Tyr Cys Arg Ser Ile Ser Val Glu Thr
    130                 135                 140
Leu Asn Cys Ser Pro Glu Ile Gln Glu Tyr Val Trp Lys Leu Met Glu
145                 150                 155                 160
Gly Glu Lys Pro Ser Leu Thr Lys Glu Val Leu Leu Ala Arg Tyr Arg
                165                 170                 175
Asp Val Lys Arg Ala Val Ala Phe Glu Glu Phe Leu Gln Val Lys Phe
            180                 185                 190
Thr Gly Lys Lys Arg Phe Ser Leu Glu Gly Gly Glu Ser Leu Val Pro
        195                 200                 205
Met Leu Glu His Leu Ile Ala Cys Gly Val Lys Gln Gly Ile Asn Arg
    210                 215                 220
Tyr Val Met Gly Met Pro His Arg Gly Arg Leu Asn Val Leu Ala Asn
225                 230                 235                 240
Ile Phe Gly Lys Pro Tyr Arg Gln Ile Phe Met Glu Phe Glu Asp Ala
                245                 250                 255
Pro Gln Ile Arg Gly Leu Glu Thr Val Gly Asp Val Lys Tyr His Lys
```

US 6,635,744 B2 Oct. 21, 2003

Substitute Sheet (Rule 26)

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                260                 265                 270
Gly Tyr Val Ala Asn Arg Pro Glu Gln Asn Val Met Met Ala Leu Leu
        275                 280                 285
Pro Asn Pro Ser His Leu Glu Ser Val Asp Pro Val Val Glu Gly Ala
    290                 295                 300
Val Ala Ala Ile Gln His Gln Gly Glu Ala Gly Lys Glu Gln Ala Cys
305                 310                 315                 320
Leu Ala Val Leu Met His Gly Asp Ala Ala Leu Ala Gly Gln Gly Val
                325                 330                 335
Val Tyr Glu Thr Phe Gln Leu Ser Gly Ile Pro Gly Tyr Ser Thr Glu
            340                 345                 350
Gly Thr Val His Ile Val Val Asn Asn Gln Ile Gly Phe Thr Ala Gln
        355                 360                 365
Pro Arg Glu Ser Arg Ser Thr Pro Tyr Cys Thr Asp Ile Ala Lys Met
    370                 375                 380
Met Gly Ile Pro Val Phe Arg Val Asn Gly Glu Asp Val Leu Ala Cys
385                 390                 395                 400
Leu Gln Val Met Glu Tyr Ala Ile His Ile Arg Glu Arg Phe His Cys
                405                 410                 415
Asp Val Ile Ile Asp Leu Cys Cys Tyr Arg Lys Tyr Gly His Asn Glu
            420                 425                 430
Ser Asp Asp Pro Ser Val Thr Ala Pro Phe Leu Tyr Glu Glu Ile Lys
        435                 440                 445
Lys Lys Lys Gln Gly Ser Glu Leu Phe Lys Glu Ile Leu Leu His His
    450                 455                 460
Pro Glu Trp Asn Ile Ser Ser Asn Glu Leu Glu Arg Ile Asp Thr Glu
465                 470                 475                 480
Ile Ala His Val Leu Asn Gln Glu Tyr Ala Ser Leu Lys Asp Pro Gly
                485                 490                 495
Val Glu Arg Leu Asp Glu Cys Met His Cys Thr Arg Met Ala Ala Gly
            500                 505                 510
Glu Leu Leu Val Asp Asn Val Asp Thr Ser Leu Asp Lys Glu Ala Leu
        515                 520                 525
Phe Asp Leu Ser Ala Lys Leu Cys Asp Ile Pro Glu His Phe Ser Pro
    530                 535                 540
His Ala Lys Ile Arg Ser Leu Leu Asn Lys Arg Met Ser Met Ala Asp
545                 550                 555                 560
Gly Glu Ile Gly Tyr Asp Trp Gly Met Ala Glu Glu Val Ala Phe Ala
                565                 570                 575
Ser Leu Leu Gln Glu Gly Phe Ser Leu Arg Leu Ser Gly Gln Asp Ser
            580                 585                 590
Ile Arg Gly Thr Phe Ser Gln Arg Gln Leu Val Trp Thr Asp Val Gln
        595                 600                 605
Thr Gly Asp Thr Phe Ser Pro Leu Tyr His Leu Ser Pro Ser Gln Gly
    610                 615                 620
Ser Val Glu Leu Tyr Asn Ser Pro Leu Ser Glu Tyr Ala Val Leu Gly
625                 630                 635                 640
Phe Glu Tyr Gly Tyr Ala Gln Gln Ala Glu Lys Thr Leu Val Ile Trp
                645                 650                 655
Glu Ala Gln Phe Gly Asp Phe Ser Asn Gly Ala Gln Ile Ile Phe Asp
            660                 665                 670
Gln Tyr Ile Ser Ser Gly Ile Gln Lys Trp Asp Leu His Ser Asp Val
        675                 680                 685
Val Val Leu Leu Pro His Gly Tyr Glu Gly Gln Gly Pro Glu His Ser
    690                 695                 700
Ser Ala Arg Ile Glu Arg Tyr Leu Gln Leu Ala Ser Asp Trp Asn Phe
705                 710                 715                 720
Gln Val Val Leu Pro Ser Thr Pro Val Gln Tyr Phe Arg Ile Leu Arg
                725                 730                 735
Glu His Thr Lys Arg Asp Leu Ser Leu Pro Leu Ile Ile Phe Ser Pro
            740                 745                 750
```

```
Lys Met Leu Leu Arg His Pro Gln Cys Val Ser Ser Ile Ala Glu Phe
        755                 760                 765
Gly Met Lys Gly Gly Phe Lys Pro Phe Leu Glu Asp Glu Asn Pro Asn
    770                 775                 780
Tyr His Ala Lys Val Leu Val Leu Cys Ser Gly Lys Ile Tyr Tyr Asp
785                 790                 795                 800
Tyr Arg Ala Ser Leu Pro Lys Asp Leu Glu Cys Arg Phe Ala Cys Ile
                805                 810                 815
Arg Val Glu Ser Leu Tyr Pro Leu Tyr Leu Glu Asp Leu Leu Val Leu
            820                 825                 830
Ile Ser Lys Tyr Thr Glu Val His His Tyr Val Trp Leu Gln Glu Glu
        835                 840                 845
Pro Gln Asn Met Gly Ala Phe Ser Tyr Phe Ala Leu Ala Thr Asp Glu
    850                 855                 860
Ile Phe Pro Ser Lys Leu Gln Cys Val Cys Arg Pro Arg Ser Ser Ser
865                 870                 875                 880
Thr Ala Thr Gly Ser Ala Ser Leu Ser Gln Lys Glu Leu Ser Met Leu
                885                 890                 895
Met Glu Thr Leu Phe Ser Ile Gly Arg Glu
            900                 905
```

<210>417
<211>295
<212>PRT
<213>Chlamydia trachomatis
<400>417

```
Met Asn Gly Lys Thr Pro Leu Ala Leu Tyr Ile His Ile Pro Phe Cys
  1               5                  10                  15
Ser Lys Lys Cys His Tyr Cys Ser Phe Tyr Thr Ile Pro Tyr Lys Glu
            20                  25                  30
Glu Leu Met Arg Ser Tyr Cys Glu Ala Val Ile Lys Glu Gly Leu Lys
        35                  40                  45
Lys Leu Ala Pro Leu Arg Cys Ser His Tyr Ile Asp Thr Val Phe Phe
    50                  55                  60
Gly Gly Gly Thr Pro Ser Leu Val Pro Pro Ala Leu Ile Gln Asp Ile
65                  70                  75                  80
Leu Val Ala Leu Glu Ala Gln His Ala Thr Glu Ile Thr Leu Glu Ala
                85                  90                  95
Asn Pro Glu Asn Leu Ser Leu Glu Tyr Ile Gln Ala Leu Ala Leu Thr
            100                 105                 110
Ser Ile Asn Arg Ile Ser Ile Gly Val Gln Thr Phe Asn Asp Pro Leu
        115                 120                 125
Leu Lys Leu Leu Gly Arg Thr His Ser Ser Ser Lys Ala Ile Glu Ala
    130                 135                 140
Phe Met Leu Cys Ser Gln Tyr Gly Phe Ser Asn Val Ser Ala Asp Leu
145                 150                 155                 160
Ile Tyr Gly Leu Pro Thr Gln Ser Ile Ser Asp Phe Ile Val Asp Leu
                165                 170                 175
Arg Gln Ala Ile Ser Leu Pro Ile Gln His Ile Ser Ile Tyr Asn Leu
            180                 185                 190
Thr Ile Asp Pro His Thr Ser Phe Tyr Lys His Arg Lys Arg Ile Leu
        195                 200                 205
Pro Ser Ile Ala Asp Asp Asp Ser Leu Ala Glu Met Ala Leu Ala Ala
    210                 215                 220
Glu Glu Leu Leu Glu Asn Gln Gly Phe Thr Arg Tyr Glu Leu Ala Ser
225                 230                 235                 240
Tyr Ala Lys Asn Gln Ala Ala Ser Lys His Asn Thr Tyr Tyr Trp Thr
                245                 250                 255
Ala Lys Pro Phe Leu Gly Leu Gly Val Ser Ala Ser Gln Tyr Leu His
            260                 265                 270
Gly Ile Arg Ser Lys Asn Leu Ser Arg Ile Ser His Tyr Leu Arg Leu
        275                 280                 285
```

60054-1626

Arg Ile Asn Ile Tyr Arg Leu
290 295

<210>418
<211>568
<212>PRT
<213>Chlamydia trachomatis
<400>418

Phe Leu Ile Glu Lys Met Asn Lys Lys Glu Arg Ile Asn Lys Lys Asn
1 5 10 15
Ala Ser Thr Lys Ile Gln Arg Asn Thr Pro Thr Arg Ala Leu Leu Ser
20 25 30
Ile Gly Ser Gln Gln Leu Ser Ser Phe Thr Lys Leu Ser Phe Asn Asn
35 40 45
Glu Ala Lys Leu Ser Gly Val Ala Thr Pro Thr Arg Asp Thr Asp Val
50 55 60
Val Pro Leu Gln Tyr Leu Gln Ala Arg Tyr Leu Ser Lys Asn Asp Pro
65 70 75 80
Asn Pro Asp Tyr Leu Pro Ile His Gly Gly Ser Met Thr Gly Asn Ile
85 90 95
Asn Met Gly Thr His Ser Val Phe Asn Leu Lys Gln Pro Thr Lys Pro
100 105 110
Ser Ala Thr Leu Pro Glu Glu Ser Ser Lys Pro Lys Asp Pro Arg Glu
115 120 125
Glu Glu Gly Phe Thr Lys Lys Thr Ala Glu Lys Gln Glu Gln Ala Ile
130 135 140
Lys Glu Tyr Asn Thr Lys Leu Ala Glu Tyr Gln Lys Lys Ile Asp Asp
145 150 155 160
Tyr Asn Ala Ala Trp Glu Ala Phe Tyr Ser Glu Ala Ala Thr Val Lys
165 170 175
Tyr Val Lys Gly Ile Val Asp Lys Ile Leu Asn Asn Asn Lys Leu Ser
180 185 190
Thr Ala Leu Asn Ser Ala Thr Glu Val Glu Lys Lys Ile Ala Leu Ala
195 200 205
Gln Lys Ala Leu Gly Ile Glu Ile Thr Ile Asn Pro Asp Ala Asp Thr
210 215 220
Asp Pro Val Pro Glu Thr Pro Lys Pro Thr Pro Thr Thr Asp Thr Glu
225 230 235 240
Glu Lys Glu Ser Pro Pro Leu Ser Tyr Asp Asp Leu Pro Ser Val Ile
245 250 255
Lys Asn Ala Gln Phe Val Val Thr Gln Ser Gln Asn Lys Leu Thr Gly
260 265 270
Asp Leu Lys Met Thr Asn Ala Gln Ile Ala Asn Ile Lys Thr Pro Asp
275 280 285
Thr Gly Asp Ser Asn Tyr Ala Ala Asn Val Thr Tyr Leu Glu Ser Lys
290 295 300
Leu Lys Gln Pro Lys Arg Ala Phe Leu Ser Asn Thr Leu Pro Thr Thr
305 310 315 320
Thr Ser Ser Pro Thr Ile Ser Phe Asn Gly Tyr Ile Pro Trp Leu Ser
325 330 335
Thr Thr Asn Gly Ser Ser Ser Pro Thr Glu Pro Asp Phe Lys Ser Glu
340 345 350
Leu Ala Asp Lys Cys Phe Thr Ala Glu Gln Glu Asn Leu Lys Val Lys
355 360 365
Thr Ala Gly Leu Leu Val Leu Ser Val Arg Gly Thr Trp Ser Pro Thr
370 375 380
Thr Ala Thr Ile Ala Asp Gly Ser Thr Gln Thr Pro Lys Thr Ile Ser
385 390 395 400
Val Asn Leu Thr Val Thr Pro Asp Asn Ser Ser Gly Thr Asn Thr Pro
405 410 415
Ser Ser Gly Ser Asp Ser Ser Gly Asp Ala Ser Ala Thr Thr Leu Thr
420 425 430

Ile Pro Leu Thr Leu Tyr Ser Arg Glu Ser Val Gln Leu Gln Leu Pro Lys Thr Ala Ser
435 440 445
Asp Ile Lys Met Asp Thr Ser Ser Gln Thr Ser
450 455 460
Asn Gly Gly Ser Gly Ser Val Ser Ser Ser Ala Thr Glu Thr Leu Thr
465 470 475 480
Ile Pro Leu Thr Leu Tyr Ser Gly Glu Ser Val Gln Leu Gln Leu Pro
485 490 495
Ile Thr Thr Thr Ser Ser Val Lys Met Ala Thr Thr Thr Ser Gln Thr
500 505 510
Ser Asn Gly Gly Gly Asp Thr Ser Ser Gln Ile Thr Leu Ser Ser Trp
515 520 525
Ser Trp Glu Ala Ala Leu Tyr Pro Thr Asp Val Thr Val Thr Asn Lys
530 535 540
Thr Thr Pro Pro Thr Thr Lys Thr Pro Ser Ser Pro Ser Pro Asn Ser
545 550 555 560
Lys Met Ile Lys Asn Lys Ile Val
565

<210>419
<211>276
<212>PRT
<213>Chlamydia trachomatis
<400>419
Ile Phe Asn Phe Val Asn Leu Tyr Thr Ile Leu Phe Leu Ile Ile Phe
1 5 10 15
Glu Leu Gly Asp Gly Asp Glu Gly Val Phe Val Val Gly Gly Val Val
20 25 30
Leu Leu Val Thr Val Thr Ser Val Gly Tyr Arg Ala Ala Ser Gln Asp
35 40 45
Gln Asp Asp Ser Val Ile Cys Asp Glu Val Ser Pro Pro Pro Leu Glu
50 55 60
Val Trp Glu Val Val Val Ala Ile Phe Thr Leu Asp Val Val Val Ile
65 70 75 80
Gly Ser Cys Ser Cys Thr Asp Ser Pro Glu Tyr Ser Val Arg Gly Ile
85 90 95
Val Ser Val Ser Val Ala Glu Asp Asp Thr Glu Pro Leu Pro Pro Leu
100 105 110
Glu Val Trp Glu Glu Val Ser Ile Phe Met Ser Asp Ala Val Leu Ile
115 120 125
Gly Ser Cys Ser Cys Thr Asp Ser Leu Glu Tyr Ser Val Arg Gly Ile
130 135 140
Val Ser Val Val Ala Glu Ala Ser Pro Glu Glu Ser Asp Pro Leu Leu
145 150 155 160
Gly Val Leu Val Pro Leu Glu Leu Ser Gly Val Thr Val Arg Phe Thr
165 170 175
Asp Met Val Leu Gly Val Cys Val Leu Pro Ser Ala Ile Val Ala Val
180 185 190
Val Gly Leu His Val Pro Leu Thr Asp Lys Thr Ser Arg Pro Ala Val
195 200 205
Phe Thr Phe Arg Phe Ser Cys Ser Ala Val Lys His Leu Ser Ala Ser
210 215 220
Ser Leu Leu Lys Ser Gly Ser Val Gly Glu Glu Asp Pro Phe Val Val
225 230 235 240
Leu Ser His Gly Met Tyr Pro Leu Asn Glu Ile Val Gly Glu Leu Val
245 250 255
Val Val Gly Arg Val Leu Glu Arg Lys Ala Leu Leu Gly Cys Leu Ser
260 265 270
Leu Asp Ser Arg
275

<210>420
<211>183

<212>PRT
<213>Chlamydia trachomatis
<400>420
Asp Ser Ile Glu Ile Tyr Glu Val Lys Asp Leu Lys Asn Glu Ile Met
1 5 10 15
Asn Asp Ile Lys Asn Asn Ile Ser Ser Ser Phe Trp Asn Pro Asn Lys
20 25 30
Val Val Thr Lys Val Leu Leu Lys Val Ser Glu Thr Gly Ile Glu Ser
35 40 45
Thr Pro Gly Ile Val Lys His Asn Gln Pro Ile Thr Gln Ser Glu Asn
50 55 60
Pro Lys Asp Pro Thr Asp Ala Val Thr Phe Lys Tyr Leu Lys Glu Asn
65 70 75 80
Tyr Thr Lys Glu Asn Asp Pro Asn Pro Gly Phe Leu Pro Thr Lys Gly
85 90 95
Gly Thr Met Thr Gly Asp Ile Asp Met Gln Gly Asn Asn Val Thr Asp
100 105 110
Ile Val Met Tyr Lys Gln Asn Gly Gln Gln Asp Pro Asp Asp Gly Ser
115 120 125
Ala Val Thr Ile Gly Tyr Leu Asn Glu Lys Ala Asp Glu Ile Lys Ser
130 135 140
Asn Asp Lys Ile Thr Arg Val Ser Gln Ala Tyr Arg Ile Leu Thr His
145 150 155 160
Lys Tyr Pro Arg Tyr Thr Asn Phe Ser Val Leu Leu Lys Ile Leu Thr
165 170 175
Leu Ser Leu Thr Gln Ile Phe
180

<210>421
<211>424
<212>PRT
<213>Chlamydia trachomatis
<400>421
Gln Asn Tyr Thr Gly Val Ala Gly Leu Ser Asp Ile Asn Ser Gln Ile
1 5 10 15
Ser Thr Leu His Gln Leu Leu Gly Ile Ala Glu Asp Pro Asp Thr Val
20 25 30
Thr Asn Pro Asp Leu Leu Lys Thr Ser Gly Gly Thr Val Tyr Glu Asn
35 40 45
Ile Asp Met Asn Ser Asn Thr Val Ser Asp Leu Gly Thr Pro Thr Asn
50 55 60
Lys Asp Thr Lys Ser Ala Ile Asn Val Glu Phe Val Gln Ala Lys Ile
65 70 75 80
Thr Ser Pro Gln Met Ala Phe Leu Lys Asn Asn Asp Thr Asn Leu Ser
85 90 95
Asn Ile Thr Val Ser Glu Tyr Phe Asn Trp Leu Gln Ala Pro Thr Pro
100 105 110
Asn Pro Ala Pro Thr Thr Pro Asp Asn Ser Asn Thr Pro Asn Asn Pro
115 120 125
Pro Ser Ser Ser Asn Gly Ala Ser Ser Phe Ile Arg Glu Leu Ala Ala
130 135 140
Thr Thr Thr Gly Ser Thr Asp Thr Glu Ile Thr Pro Ala Ala Glu Gly
145 150 155 160
Thr Asp Leu Pro Asn Thr Thr Phe Ser Glu Lys Ser Pro Leu Trp Glu
165 170 175
Glu Phe Phe Ser Tyr Pro Asp Ser Ser Arg Ser Glu Met Val Ile Gln
180 185 190
Lys Thr Gly Ile Leu Thr Phe Ser Met Gln Gly Thr Trp Asn His Pro
195 200 205
Asn Asn Thr Thr Pro Thr Ser Thr Asp Pro Ile Ser Leu Glu Leu Thr
210 215 220
Val Thr Pro Pro Lys Thr Asp Thr Thr Pro Lys Ser Pro Ser Ser Ser

225 230 235 240
Pro Lys Lys Thr Thr Ser Glu Ala Thr Ser Ser Pro Ala Thr Asn Gly
245 250 255
Pro Thr Thr Ala Ser Ile Thr Lys Thr Phe Ser Arg Lys Tyr Asn Leu
260 265 270
Ser Ala Thr Pro Ser Pro Thr Pro Thr Thr Pro Thr Thr Pro Asp Pro
275 280 285
Ile Thr Lys Lys Phe Ser Leu Ala Ser Gly Gln Ser Cys Thr Leu Gln
290 295 300
Ile Pro Val Gln Ala Thr Gly Ser Val Leu Lys Leu Lys Tyr Val Asn
305 310 315 320
Pro Asn Asn Asn Ser Ser Gly Gly Ser Ser Gly Ser Gly Gly Asp Ser
325 330 335
Gln Glu Glu Asn Pro Thr Ser Ser Ser Gly Thr Asn Asn Ala Pro Ala
340 345 350
Ser Gln Thr Ser Arg Ile Gln Ile Arg Tyr Ala Ser Thr Thr Thr Thr
355 360 365
Asp Ser Gly Ser Thr Thr Lys Asn Pro Ile Lys Ala Gln Ala Asp Glu
370 375 380
Ser Thr Pro Pro Glu Thr Thr Ser Thr Gly Ile Thr Leu Thr Ser Phe
385 390 395 400
Ser Trp Ser Leu Val Leu Thr Ser Gly Glu Ile Thr Lys Ala Lys Ser
405 410 415
Thr Pro Ser Thr Pro Ser Gln Pro
420

<210>422
<211>134
<212>PRT
<213>Chlamydia trachomatis
<400>422
Glu Lys Asn Ser Ser His Lys Gly Asp Phe Ser Glu Asn Val Val Phe
1 5 10 15
Gly Arg Ser Val Pro Ser Ala Ala Gly Val Ile Ser Val Ser Val Glu
20 25 30
Pro Val Val Val Ala Ala Ser Ser Leu Ile Asn Glu Glu Ala Pro Phe
35 40 45
Glu Glu Asp Gly Gly Leu Phe Gly Val Leu Leu Leu Ser Gly Val Val
50 55 60
Gly Ala Gly Phe Gly Val Gly Ala Cys Ser Gln Leu Lys Tyr Ser Glu
65 70 75 80
Thr Val Ile Leu Glu Arg Phe Val Ser Leu Phe Phe Arg Lys Ala Ile
85 90 95
Cys Gly Glu Val Ile Leu Ala Cys Thr Asn Ser Thr Leu Ile Ala Leu
100 105 110
Leu Val Ser Leu Phe Val Gly Val Pro Arg Ser Asp Thr Val Leu Leu
115 120 125
Phe Ile Ser Ile Phe Ser
130

<210>423
<211>496
<212>PRT
<213>Chlamydia trachomatis
<400>423
Leu Ile Lys Arg Gln Asn Met Asn Lys Lys Ile Ile Lys Glu Arg Val
1 5 10 15
Ser Ser Ser Val Pro Ser Thr Pro Ser Asp Gln Pro Ala Asp Pro Thr
20 25 30
Asn Pro Val Thr Lys Met Leu Phe Glu Cys Lys Leu Ser Gln Asn Gln
35 40 45
Gly Asp Ala Ser Ala Asp Val Asp Ala Met Val Thr Thr Ala His Val
50 55 60

```
Lys Leu Asp Ala Lys Asn Gln Gln Val Arg Lys Val Ala Lys Arg Glu
 65                  70                  75                  80
Glu Asp Gln Asn Val Ile Val Leu Ser Gln Leu Glu Gly Tyr Leu Gln
                85                  90                  95
Lys Gly Ser Arg Ser Ile Ala Gly Leu Phe Leu Pro Thr Ser Gly Gly
            100                 105                 110
Ala Met Val Gly Asp Ile Asn Met Gly Thr Ser Pro Gly Asn Thr Ile
        115                 120                 125
Lys Gly Leu Pro Ser Ser Trp Gly Ser Ala Met Phe Leu Gly Asn Glu
    130                 135                 140
Tyr Ala Ala Ser Val Gly Ile Val Gln Asp Val Val Gly Glu Tyr Arg
145                 150                 155                 160
Ala Arg Leu Asp Asp Leu Ile Asp Arg Ile Thr Lys Tyr Ala Gly Ser
                165                 170                 175
Gly Glu Gly Ser Leu Glu Gln Leu Ile Lys Asp Leu Gly Ser Pro Gln
            180                 185                 190
Glu Ser Gln Ala Gly Gln Thr Pro Ser Val Thr Leu Glu Lys Pro Thr
        195                 200                 205
Asp Ala Lys Trp Leu Leu Leu Ser Ala Lys Asn Ala Met Thr Gly Thr
    210                 215                 220
Leu Arg Phe Glu Lys Lys Gln Gly Ala Leu Pro Thr Thr Pro Asp Pro
225                 230                 235                 240
Thr Ile Thr Asn Leu Lys Ala Gly Gly Leu Gly Thr Ile Gly Thr Ala
                245                 250                 255
Thr Pro Lys Asp Lys Leu Gln Asn Ile Val Ser Val Ala Asp Leu Thr
            260                 265                 270
Thr Ile Leu Lys Asp Leu Gln Asn Asn Ala Pro Ser Glu Gly Thr Gly
        275                 280                 285
Ser His Thr Gly Ser Asp Val Gly Ser Arg Ser Gly Ser Gly Thr Asp
    290                 295                 300
Ser Val Ser Gly Gly Val Ala Gly Ala Ser Val Ser Thr Thr Thr Ala
305                 310                 315                 320
Ser Thr Phe Pro Glu Trp Thr Gly Gln Glu Val Pro Tyr Leu Val Glu
                325                 330                 335
Gln Ser Pro Asp Ser Gly Ser Gly Ser Leu Ser Val Gln Asn Pro Leu
            340                 345                 350
Lys Ser Ser Asn Ala Asp Asn Tyr Ile Lys Lys Asp Asn Gly Thr Tyr
        355                 360                 365
Ser Leu Leu Arg Arg Gly Leu Tyr Leu Ile Thr Phe Ala Tyr Glu Phe
    370                 375                 380
Gly Ser Pro Ile Gln Asn Gly Ala Val Thr Cys Thr Gly Thr Leu Arg
385                 390                 395                 400
Lys Lys Ser Asp Ser Thr Ser Ala Gly Gly Asp Val Ala Ala Gln Pro
                405                 410                 415
Thr Ser Gly Asp Ala Thr Ala Pro Thr Asp Pro Glu Pro Ser Pro Ala
            420                 425                 430
Phe Ser Val Val Gly Ser Ser Asp Gly Lys Thr Val Val Gly Ser Ala
        435                 440                 445
Tyr Ile Leu Val Pro Gly Asp Lys Ala Leu Ser Lys His Thr Leu Thr
    450                 455                 460
Leu Ala Leu Thr Pro Gly Lys Asn Thr Glu Val Ser Pro Thr Ser Ala
465                 470                 475                 480
Thr Ala Ser Lys Ser Tyr Val Ala Ile Ser Tyr Met Gly Ala Gly Tyr
                485                 490                 495
```

<210>424
<211>239
<212>PRT
<213>Chlamydia trachomatis
<400>424

```
Val Ala Met Ala Leu Tyr Leu Leu Pro Asn Thr Leu Gly Ser Lys Arg
  1               5                  10                  15
```

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Ser Glu Asp Leu Pro Ser Ser Val Gly Glu Ile Val Arg Asn Lys Ile
            20                  25                  30
Gln Gly Leu Ile Val Glu Ser Asp Arg Gly Gly Arg Leu Phe Leu Ser
        35                  40                  45
Leu Trp Lys Val Glu Glu Pro His Arg Phe Pro Leu Ala Val Met Ser
    50                  55                  60
Lys Asn Asp Thr Ser Val Lys Ala Cys Asp Phe Tyr Leu Glu Pro Ile
65                  70                  75                  80
Leu Lys Lys Gln Glu Ser Trp Gly Val Ile Ser Asp Ala Gly Leu Pro
                85                  90                  95
Cys Ile Ala Asp Pro Gly Ala Lys Leu Val Arg Arg Ala Arg Thr Leu
            100                 105                 110
Gly Ile Pro Val His Ala Val Ser Gly Pro Cys Ser Ile Thr Gln Ala
        115                 120                 125
Leu Met Leu Ser Gly Leu Pro Gly Gln Asn Phe Thr Phe His Gly Tyr
    130                 135                 140
Leu Pro Gln Asn Pro Lys Glu Arg Ser Arg Tyr Leu Arg Ser Cys Ser
145                 150                 155                 160
Gly Lys Ser His Thr Gln Ile Cys Ile Glu Thr Pro Tyr Arg Asn Pro
                165                 170                 175
Tyr Thr Phe Asp Ala Leu Leu Asp Gln Leu Pro Asp His Gly Glu Leu
            180                 185                 190
Cys Val Ala Ile Asp Leu Met Gly Asp Gln Glu Tyr Val Ser Thr Arg
        195                 200                 205
Ser Ile Ala Val Trp Asn Gln Ser Ser Asp Ile Glu Glu Val Arg Glu
    210                 215                 220
Arg Leu Lys Lys Val Pro Ala Ile Phe Leu Phe Ile Thr Ser Phe
225                 230                 235
<210>425
<211>111
<212>PRT
<213>Chlamydia trachomatis
<400>425
Leu Lys Val Leu Ile Lys Arg Ser Lys Glu Leu Gln Leu Ser Cys Ser
  1               5                  10                  15
Leu Gly Val Ala Lys Ile Phe Val Ser Lys Phe Pro Gln Thr Gly Leu
            20                  25                  30
Phe Glu Ile Leu Ser Glu Phe Gln Lys Leu Ile Cys Gln Met Gly Asp
        35                  40                  45
Lys Glu Ser Ile Glu Ala Ser Asp Ile Gln Ser Phe Val Glu Lys Lys
    50                  55                  60
Glu Ala Ile Ser Leu Trp Lys Leu Arg Asp Ala Leu Leu Arg Lys Asp
65                  70                  75                  80
Arg Val Ala Ala His Ser Leu Met Arg Ser Leu Val Ser Asp Met Gly
                85                  90                  95
Glu Glu Pro Leu Gly Phe Ser Thr Phe Tyr Val Val Ser Thr Ser
            100                 105                 110
<210>426
<211>191
<212>PRT
<213>Chlamydia trachomatis
<400>426
Glu Phe Ser Phe Pro Gly Phe Leu Tyr Leu Leu Ala Glu Ser Lys Cys
  1               5                  10                  15
Leu Lys Lys Ile Lys Ser Gly Asn Lys Lys Asn Asn Pro Arg Ile Ile
            20                  25                  30
Gly Phe Trp Arg Trp Ile Met Gly Asn Ser Gln Asn Ser Ile His Ile
        35                  40                  45
Thr Ser Thr Lys Asp Phe Val Gln Tyr Ile Glu Arg Glu Arg Phe Arg
    50                  55                  60
Val Ile Val Ile Gly Ser Ser Ser Leu Glu Asp Lys Asp Ile Phe Ser
```

65 70 75 80
Glu Leu Tyr Ile Ser Gly Arg Lys Ser Phe Phe Asp Gly Gln Arg Leu
85 90 95
Leu Gln Gln Glu Leu Leu Ser Trp Thr Asp His Phe Gly Leu Phe Ala
100 105 110
Ser Gln Glu Thr Ile Gly Ile Tyr Gln Ala Glu Lys Met Ser Ser Ser
115 120 125
Leu Gln Glu Phe Ile Ile Asp Tyr Thr Arg His Pro Asn Pro Asn Leu
130 135 140
Thr Leu Phe Leu Phe Thr Asn Lys Ala Glu Leu Phe Ser Ser Leu Ser
145 150 155 160
Ser Lys Leu Ser Asn Ala Leu Cys Leu Ser Leu Phe Gly Glu Tyr Phe
165 170 175
Ala Glu Arg Asp Ala Arg Ile Ala Gln Gly Phe Asp Lys Thr Phe
180 185 190

<210>427
<211>295
<212>PRT
<213>Chlamydia trachomatis
<400>427
Met Asn Met Leu Gly Val Gln Lys Lys Arg Ser Thr Arg Lys Thr Ala
1 5 10 15
Ala Arg Lys Thr Val Val Arg Lys Pro Ala Ala Lys Lys Thr Ala Ala
20 25 30
Lys Lys Ala Pro Val Arg Lys Val Ala Ala Lys Lys Thr Val Ala Arg
35 40 45
Lys Thr Val Ala Lys Lys Thr Val Ala Ala Arg Lys Pro Val Ala Lys
50 55 60
Xaa Ala Thr Ala Arg Lys Ala Pro Val Arg Xaa Ala Val Ala Lys Lys
65 70 75 80
Thr Val Ala Arg Lys Thr Val Ala Xaa Lys Thr Val Ala Ala Arg Lys
85 90 95
Pro Val Ala Lys Lys Ala Ala Ala Lys Lys Ala Pro Val Arg Lys Val
100 105 110
Ala Ala Lys Lys Thr Val Ala Arg Lys Thr Val Ala Lys Lys Thr Val
115 120 125
Ala Ala Arg Lys Pro Val Ala Lys Lys Ala Thr Ala Lys Lys Ala Pro
130 135 140
Val Arg Lys Ala Val Ala Lys Lys Thr Val Ala Arg Lys Thr Val Ala
145 150 155 160
Lys Lys Thr Val Ala Ala Arg Lys Pro Val Ala Lys Lys Ala Thr Gly
165 170 175
Lys Lys Ala Pro Val Arg Lys Val Ala Ala Lys Lys Thr Val Ala Arg
180 185 190
Lys Thr Val Ala Lys Lys Thr Val Ala Ala Arg Lys Pro Val Ala Lys
195 200 205
Lys Ala Thr Ala Lys Lys Ala Pro Val Arg Lys Ala Val Ala Lys Lys
210 215 220
Thr Val Ala Lys Arg Val Ala Ser Thr Lys Lys Ser Ser Val Ala Val
225 230 235 240
Lys Ala Gly Val Cys Met Lys Lys His Lys His Thr Ala Ala Cys Gly
245 250 255
Arg Val Ala Ala Ser Gly Val Lys Val Cys Ala Ser Ala Ala Lys Arg
260 265 270
Lys Met Asn Pro Asn Arg Ser Arg Thr Ala His Ser Trp Arg Gln Gln
275 280 285
Leu Met Lys Leu Val Ala Arg
290 295

<210>428
<211>173
<212>PRT

<213>Chlamydia trachomatis
<400>428

```
Met Gly Asp Val Tyr Val Gly Met Thr Gly Leu Ser Val Glu Ile Gly
  1               5                  10                  15
Ser Thr Asp Ala Glu Gly Arg Leu Ile Leu Ala Asp Ala Ile Ser Tyr
            20                  25                  30
Ala Leu Lys Tyr Cys Asn Pro Thr Arg Ile Ile Asp Phe Ala Thr Leu
        35                  40                  45
Thr Gly Ala Met Val Val Ser Leu Gly Glu Ser Val Ala Gly Phe Phe
    50                  55                  60
Ala Asn Asn Asp Val Leu Ala Arg Asp Leu Ala Glu Ala Ser Ser Glu
65                  70                  75                  80
Thr Gly Glu Ala Leu Trp Arg Met Pro Leu Val Glu Lys Tyr Asp Gln
                85                  90                  95
Ala Leu His Ser Asp Ile Ala Asp Met Lys Asn Ile Gly Ser Asn Arg
            100                 105                 110
Ala Gly Ser Ile Thr Ala Ala Leu Phe Leu Gln Arg Phe Leu Glu Asp
        115                 120                 125
Asn Pro Val Ala Trp Ala His Leu Asp Ile Ala Gly Thr Ala Tyr His
    130                 135                 140
Glu Lys Glu Glu Leu Pro Tyr Pro Lys Tyr Ala Thr Gly Phe Gly Val
145                 150                 155                 160
Arg Cys Leu Ile His Tyr Met Glu Lys Phe Leu Ser Lys
                165                 170
```

<210>429
<211>309
<212>PRT
<213>Chlamydia trachomatis
<400>429

```
Val Val Leu Leu Tyr Ser Gln Ala Ser Trp Asp Gln Arg Ser Lys Ala
  1               5                  10                  15
Asp Ala Leu Val Leu Pro Phe Trp Met Lys Asn Pro Lys Ala Gln Glu
            20                  25                  30
Ala Ala Val Val Asp Glu Asp Tyr Lys Leu Val Tyr Gln Asn Ala Leu
        35                  40                  45
Ser Asn Phe Ser Gly Lys Lys Gly Glu Thr Ala Phe Leu Phe Gly Asn
    50                  55                  60
Asp His Thr Lys Glu Gln Lys Ile Val Leu Leu Gly Leu Gly Lys Ser
65                  70                  75                  80
Glu Glu Val Ser Gly Thr Thr Val Leu Glu Ala Tyr Ala Gln Ala Thr
                85                  90                  95
Thr Val Leu Arg Lys Ala Lys Cys Lys Thr Val Asn Ile Leu Phe Pro
            100                 105                 110
Thr Ile Ser Gln Leu Arg Phe Ser Val Glu Glu Phe Leu Thr Asn Leu
        115                 120                 125
Ala Ala Gly Val Leu Ser Leu Asn Tyr Asn Tyr Pro Thr Tyr His Lys
    130                 135                 140
Val Asp Thr Ser Leu Pro Phe Leu Glu Lys Val Thr Val Met Gly Ile
145                 150                 155                 160
Val Ser Lys Val Gly Asp Lys Ile Phe Arg Lys Glu Glu Ser Leu Phe
                165                 170                 175
Glu Gly Val Tyr Leu Thr Arg Asp Leu Val Asn Thr Asn Ala Asp Glu
            180                 185                 190
Val Thr Pro Glu Lys Leu Ala Ala Val Ala Lys Gly Leu Ala Gly Glu
        195                 200                 205
Phe Ala Ser Leu Asp Val Lys Ile Leu Asp Arg Lys Ala Ile Leu Lys
    210                 215                 220
Glu Lys Met Gly Leu Leu Ala Ala Val Ala Lys Gly Ala Ala Val Glu
225                 230                 235                 240
Pro Arg Phe Ile Val Leu Asp Tyr Gln Gly Lys Pro Lys Ser Lys Asp
                245                 250                 255
```

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Arg Thr Val Leu Ile Gly Lys Gly Val Thr Phe Asp Ser Gly Gly Leu
            260                 265                 270
Asp Leu Lys Pro Gly Lys Ala Met Ile Thr Met Lys Glu Asp Met Ala
        275                 280                 285
Gly Ala Ala Thr Val Leu Gly Ile Phe Ser Ala Phe Ser Phe Pro Trp
    290                 295                 300
Ser Phe Arg Ser Met
305
<210>430
<211>157
<212>PRT
<213>Chlamydia trachomatis
<400>430
Met Leu Phe Gly Tyr Leu Val Gly Phe Leu Ala Ala Asp Pro Glu Glu
  1               5                  10                  15
Arg Met Thr Ser Gly Gly Lys Arg Val Val Val Leu Arg Leu Gly Val
             20                  25                  30
Lys Ser Arg Val Gly Ser Lys Asp Glu Thr Val Trp Cys Arg Cys Asn
         35                  40                  45
Ile Trp Asn Asn Arg Tyr Asp Lys Met Leu Pro Tyr Leu Lys Lys Gly
     50                  55                  60
Ser Ser Val Ile Val Ala Gly Glu Leu Ser Leu Glu Ser Tyr Val Gly
 65                  70                  75                  80
Arg Asp Gly Ser Pro Gln Ala Ser Ile Ser Val Ser Val Asp Thr Leu
                 85                  90                  95
Lys Phe Asn Ser Gly Ser Ser Arg Pro Asp Ala Arg Gly Ser Asp Glu
            100                 105                 110
Gly Arg Gln Arg Ala Asn Asp Asn Val Ser Ile Gly Phe Asp Gly Glu
        115                 120                 125
Ser Leu Asp Thr Asp Ser Ala Leu Asp Lys Glu Val Tyr Ala Gly Phe
    130                 135                 140
Gly Glu Asp Gln Gln Tyr Ala Ser Glu Asp Val Pro Phe
145                 150                 155
<210>431
<211>186
<212>PRT
<213>Chlamydia trachomatis
<400>431
Lys Ile Leu Leu Lys Ser Leu Lys Leu Pro Asp Val Ala Phe Asp Gln
  1               5                  10                  15
Asn Asn Thr Cys Ile Leu Phe Val Asp Gly Glu Phe Ser Leu His Leu
             20                  25                  30
Thr Tyr Glu Glu His Ser Asp Arg Leu Tyr Val Tyr Ala Pro Leu Leu
         35                  40                  45
Asp Gly Xaa Pro Asp Asn Pro Gln Arg Lys Leu Ala Leu Tyr Glu Lys
     50                  55                  60
Leu Leu Glu Gly Ser Met Leu Gly Gly Gln Met Ala Gly Gly Gly Val
 65                  70                  75                  80
Gly Val Ala Thr Lys Glu Gln Leu Ile Leu Met His Cys Val Leu Asp
                 85                  90                  95
Met Lys Tyr Ala Glu Thr Asn Leu Leu Lys Ala Phe Ala Gln Leu Phe
            100                 105                 110
Ile Glu Thr Val Val Lys Trp Arg Thr Val Cys Ser Asp Ile Ser Val
        115                 120                 125
Asp Glu Asn Pro Leu Leu Ile Pro Cys His Lys Cys Leu Lys Gly Val
    130                 135                 140
Ala Glu Glu Phe Asn Leu Leu Gln Gln Glu Ser Val His Lys Ser Phe
145                 150                 155                 160
Ala Ile Ile Gln Gln Lys Glu Glu Gly Leu Leu Pro Phe Val Phe Lys
                165                 170                 175
Pro Pro Pro Ser Ser Leu His Phe Phe Gly
```

180 185

<210>432
<211>618
<212>PRT
<213>Chlamydia trachomatis
<400>432

```
Asn Ser Ser Ile Phe Tyr Arg Pro Gln Asp Trp Ser His Leu Ala Tyr
  1               5                  10                  15
Arg Asn Cys Arg His Phe Leu Val Asn Gly Arg Met Leu Ile Asn Leu
            20                  25                  30
Arg Gly Thr Asp Leu Ser Ser Gln Lys Phe Ala Thr Asp Ser Tyr Ile
        35                  40                  45
Ala Asp Pro Tyr Ser Lys Asn Ile Tyr Ser Pro Gln Leu Phe Gly Ser
    50                  55                  60
Pro Lys Gln Glu Lys Asp Tyr Ala Phe Ser Tyr Leu Lys Tyr Glu Asp
65                  70                  75                  80
Phe Asp Trp Glu Gly Asp Thr Pro Leu His Leu Pro Lys Glu Asn Tyr
                85                  90                  95
Phe Ile Tyr Glu Met His Val Arg Ser Phe Thr Arg Asp Pro Ser Ser
            100                 105                 110
Gln Val Ser His Pro Gly Thr Phe Leu Gly Ile Ile Glu Lys Ile Asp
        115                 120                 125
His Leu Lys Gln Leu Gly Val His Ala Val Glu Leu Leu Pro Ile Phe
    130                 135                 140
Glu Phe Asp Glu Thr Val His Pro Phe Lys Asn Gln Asp Phe Pro His
145                 150                 155                 160
Leu Cys Asn Tyr Trp Gly Tyr Ser Ser Val Asn Phe Phe Cys Pro Ser
                165                 170                 175
Arg Arg Tyr Thr Tyr Gly Ala Asp Pro Cys Ala Pro Ala Arg Glu Phe
            180                 185                 190
Lys Thr Leu Val Lys Ala Leu His Arg Ala Gly Ile Glu Val Ile Leu
        195                 200                 205
Asp Val Val Phe Asn His Thr Gly Phe Glu Gly Thr Ser Cys Pro Leu
    210                 215                 220
Pro Trp Ile Asp Leu Lys Ser Tyr Tyr Met Val Asn Asp His Gly Asp
225                 230                 235                 240
Leu Met Asn Phe Ser Gly Cys Gly Asn Thr Val Asn Thr Asn Thr Pro
                245                 250                 255
Thr Thr Leu Lys Trp Ile Leu Asp Ala Leu Arg Tyr Trp Val Gln Glu
            260                 265                 270
Met His Val Asp Gly Phe Arg Phe Asp Leu Ala Ser Val Phe Ser Arg
        275                 280                 285
Asp Pro Gln Gly Val Pro Leu Pro Leu Thr Pro Ile Leu Gln Ala Ile
    290                 295                 300
Ser Ser Asp Ser Ile Leu Ser Glu Thr Lys Leu Ile Ala Glu Pro Trp
305                 310                 315                 320
Asp Ala Gly Gly Leu Tyr Gln Leu Gly His Phe Pro Ser Ile Ser Thr
                325                 330                 335
Arg Trp Ser Glu Trp Asn Gly Cys Tyr Arg Asp His Val Lys Ala Phe
            340                 345                 350
Leu Asn Gly Asp Ala His Gln Val Ser Ser Phe Ala Ser Arg Ile Ser
        355                 360                 365
Gly Ser His Asp Ile Tyr Pro Asn Gly Lys Pro Thr Asn Ser Ile Asn
    370                 375                 380
Tyr Ile Cys Ser His Asp Gly Phe Thr Leu Tyr Asp Thr Val Ala Tyr
385                 390                 395                 400
Asn Asp Lys His Asn Glu Glu Asn Gly Glu Tyr Asn Arg Asp Gly Thr
                405                 410                 415
Ser Ala Asn Tyr Ser Tyr Asn Phe Gly Cys Glu Gly Glu Thr Thr Asp
            420                 425                 430
Pro Thr Ile Cys Ala Leu Arg Glu Arg Gln Met Lys Asn Phe Phe Leu
```

```
        435                 440                 445
Ala Leu Phe Leu Ser Gln Gly Ile Pro Met Ile Gln Ser Gly Asp Glu
    450                 455                 460
Tyr Gly His Thr Ala Tyr Gly Asn Asn Asn His Trp Cys Leu Asp Thr
465                 470                 475                 480
Lys Ile Asn Tyr Phe Leu Trp Asp Arg Leu Ala Glu Arg Lys Glu Leu
                485                 490                 495
Phe Ser Phe Leu Cys Gln Val Ile Ala Leu Arg Lys Ala Tyr Thr Glu
            500                 505                 510
Leu Phe Asn Thr Ser Phe Leu Ser Glu Asp Thr Ile Thr Trp Leu Asn
        515                 520                 525
Thr Lys Gly Ser Pro Arg Glu Trp Gly Ala Asp His Tyr Leu Ala Phe
    530                 535                 540
Xaa Leu Lys His Leu Asn Tyr Ser Leu Phe Val Xaa Phe Tyr Ser Gly
545                 550                 555                 560
Asn Glu Arg Ile Glu Ile Ser Leu Pro Lys Pro Arg Lys Glu His Leu
                565                 570                 575
Ala Tyr Glu Lys Ile Val Asp Ser Thr Thr Gly Phe Phe Ser Gln Ile
            580                 585                 590
Leu Ser Pro Lys Leu Ser Leu Glu Pro Tyr Ser Ser Leu Val Ala Ile
        595                 600                 605
Ser Arg Arg Lys Thr Ser Leu Glu Ser Arg
    610                 615
<210>433
<211>303
<212>PRT
<213>Chlamydia trachomatis
<400>433
Arg Val Trp Phe Ser Glu Pro Gln Glu Asp Gly Leu Gln Pro Leu Trp
  1                 5                  10                  15
His Met Asn Ile Leu Thr Gly Thr Leu Arg Thr Gly Gly Glu Lys Asn
             20                  25                  30
Lys Val Lys Lys Leu Asn Leu Leu Val Leu Leu Gly Val Phe Cys Gly
         35                  40                  45
Val Ser Gly Val Gly Asp Ala Asp Val Lys Val Ser Asp Ala Leu Ser
     50                  55                  60
Gln Ser Ile Leu Val Glu Pro Lys Ile Arg Val Leu Leu Leu Ser Glu
 65                  70                  75                  80
Ser Thr Thr Ala Leu Ile Glu Ala Lys Gly Ala Phe Ser Val Phe Gly
                 85                  90                  95
Asp Gly Glu Leu Leu Arg Val Ser Ser Gln Gly Gln Arg Cys Ala Ala
            100                 105                 110
His Ala Leu Tyr Gly Gly Ile Arg Trp Gly Glu Asn Tyr Pro Asn Val
        115                 120                 125
Glu Cys Leu Lys Ile Glu Pro Leu Asp Gly Ala Ala Ser Leu Phe Val
    130                 135                 140
Asn Gly Ile Gln Tyr Lys Gly Ala Ile Tyr Ile His Arg Thr Asp Arg
145                 150                 155                 160
Ser Cys Leu Phe Ile Val Asn Glu Leu Ala Leu Glu Asp Tyr Leu Lys
                165                 170                 175
Ser Thr Leu Ser Val Lys Tyr Leu Lys Glu Leu Asp Lys Glu Ala Leu
            180                 185                 190
Ser Ala Cys Val Ile Leu Glu Arg Thr Ala Leu Tyr Glu Arg Leu Leu
        195                 200                 205
Ala Gly Asn Ser His Ser Phe Trp His Val Asn Ala Gln Glu Asp Arg
    210                 215                 220
Tyr Gly Gly Phe Gly Val Thr Ser Gln Phe Tyr Gly Val Glu Glu Ala
225                 230                 235                 240
Val Asp Trp Thr Ser Arg Leu Val Leu Asp Asn Pro Glu Gly Leu Val
                245                 250                 255
Phe Asn Ala Asp Tyr Leu Leu Arg Ala Asn Val Asp His Leu Ala Ile
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            260                 265                 270
Glu Gly Tyr Asn Ala Arg Gln Ile Leu Glu Lys Phe Tyr Lys Asp Ala
        275                 280                 285
Asp Leu Val Val Ile Glu Ser Trp Glu Asp Asp Cys Lys Gly Ala
    290                 295                 300
<210>434
<211>247
<212>PRT
<213>Chlamydia trachomatis
<400>434
Thr Ile Ala Asn Thr Tyr Met Thr His Lys Ile Ser Val Leu His Gln
  1               5                  10                  15
Asp Lys Lys Phe Asp Phe Ser Leu Arg Pro Lys Lys Leu Thr Glu Phe
            20                  25                  30
Cys Gly Gln Lys Gln Leu Lys Glu Arg Leu Asp Leu Phe Leu Arg Ala
        35                  40                  45
Ala Val Gln Arg Asn Glu Val Pro Gly His Cys Leu Phe Tyr Gly Pro
    50                  55                  60
Pro Gly Leu Gly Lys Thr Ser Leu Ala His Ile Met Ala Asn Thr Ile
65                  70                  75                  80
Gly Lys Gly Leu Val Ile Ala Ser Gly Pro Gln Leu Leu Lys Pro Ser
                85                  90                  95
Asp Leu Ile Gly Leu Leu Thr Gly Leu Gln Glu Gly Asp Ile Phe Phe
            100                 105                 110
Ile Asp Glu Ile His Arg Met Gly Lys Ala Ala Glu Glu Tyr Leu Tyr
        115                 120                 125
Pro Ala Met Glu Asp Phe Lys Val Asp Ile Thr Leu Asp Ser Gly Pro
    130                 135                 140
Gly Ala Arg Ser Val Arg Leu Asp Leu Ala Pro Phe Thr Leu Val Gly
145                 150                 155                 160
Ala Thr Thr Arg Ala Gly Met Leu Ser Glu Pro Leu Arg Thr Arg Phe
                165                 170                 175
Ala Phe Thr Gly Arg Val Asp Tyr Tyr Thr Asp Glu Asp Leu Val Ser
            180                 185                 190
Ile Leu Ser Arg Ser Ser Gln Leu Leu Ala Ile Glu Ala Asn Gln Glu
        195                 200                 205
Thr Leu Leu Glu Ile Ala Arg Arg Ala Arg Gly Thr Pro Arg Leu Ala
    210                 215                 220
Asn Asn Leu Leu Arg Trp Val Arg Asp Phe Ala Gln Met Arg Glu Gly
225                 230                 235                 240
Asn Cys Ile Asn Ser Arg Pro
                245
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<211>190
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<213>Chlamydia trachomatis
<400>435
Met Gly Ile Lys Glu Asp Asn Trp Ile Arg Lys Met Ala Ile Glu Glu
  1               5                  10                  15
Gly Met Ile Glu Pro Phe Ala Asp Ser Gln Val Lys Leu His Pro Glu
            20                  25                  30
Thr Gly Glu Lys Leu Ile Ser Tyr Gly Leu Ser Ser Tyr Gly Tyr Asp
        35                  40                  45
Leu Arg Ile Ser Arg Glu Phe Lys Val Phe Thr Asn Val Tyr Asn Ser
    50                  55                  60
Leu Val Asp Pro Lys Cys Phe Thr Glu Asp Ala Leu Ile Ser Ile Val
65                  70                  75                  80
Asp Asp Val Cys Ile Ile Pro Pro Asn Ser Phe Ala Leu Ala Arg Ser
                85                  90                  95
Val Glu Tyr Phe Arg Ile Pro Arg Asn Val Leu Thr Val Cys Ile Gly
            100                 105                 110
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Lys Ser Thr Tyr Ala Arg Cys Gly Leu Ile Val Asn Val Thr Pro Phe
        115                 120                 125
Glu Pro Glu Trp Glu Gly Tyr Val Thr Ile Glu Ile Ser Asn Thr Thr
    130                 135                 140
Pro Leu Pro Ala Lys Val Tyr Ala Asn Glu Gly Ile Ala Gln Val Leu
145                 150                 155                 160
Phe Phe Glu Gly Asp Ala Ala Cys Asp Val Ser Tyr Ala Glu Arg Gln
                165                 170                 175
Gly Lys Tyr Gln Lys Gln Gln Gly Ile Thr Ile Pro Phe Val
            180                 185                 190
<210>436
<211>109
<212>PRT
<213>Chlamydia trachomatis
<400>436
Asn Ser Cys Val Asn Thr Lys Val Ala Asp Trp Arg Thr Lys Lys Leu
  1               5                  10                  15
Ala Pro Ile Phe Pro Leu Asp Tyr Glu Asp Phe Phe Thr Val Phe Met
            20                  25                  30
Lys Lys Gln His Tyr Thr Leu Pro Gly Asn Val Ser Asn Met Arg Ile
        35                  40                  45
Leu Ser Pro Val Arg Pro Val Ser Glu Thr Ala Leu Thr Thr Ile Ile
    50                  55                  60
Ile Ser Gly Leu Glu Glu Glu Asp Lys Leu Gly Leu Leu Gly Gln Val
65                  70                  75                  80
Gln Gln Phe Leu Phe Asp Ala Glu Glu Ala His Pro Gln Arg Gly Glu
                85                  90                  95
Ser Ile Leu Ile Gln Asn Val Leu Asp Asp Ile Thr Gln
            100                 105
<210>437
<211>168
<212>PRT
<213>Chlamydia trachomatis
<400>437
Val Phe Cys Ala Gly Ala Tyr Phe Gly Cys Ala Arg Phe Glu Phe Leu
  1               5                  10                  15
Glu Pro Thr Gly Ser Leu Phe Val Ala Lys Arg Asp Leu Gly Phe Phe
            20                  25                  30
Pro Gly Ala Ala Asn Gly Pro Ala Tyr Glu Ser Ala Phe Ser Tyr Thr
        35                  40                  45
Ser Ser Ser Gly Val Leu Ala Ala Pro Leu Val Phe Ala Asp Phe Pro
    50                  55                  60
Gly Glu Ser Phe Ser Leu Phe Asn Gly Gly Cys Cys Phe Glu Asn Ala
65                  70                  75                  80
Glu His Phe Pro Glu Ile Cys Ile Glu Ala Arg Tyr Asn Asn Leu Leu
                85                  90                  95
Gly Lys Pro Ala Ala Ile Leu Ser Arg Arg Leu Asp Lys Gly Leu Val
            100                 105                 110
Val Leu Ser Gly Pro His Ile Glu Tyr Leu Pro Glu Phe Cys Ser Leu
        115                 120                 125
Gln Glu Asp Asn Val Ile Gln Ala Arg Glu Gln Ile Ala Ala His Ser
    130                 135                 140
Ser Ser Leu Glu Glu Tyr Lys Gln Phe Leu Ile His Arg Leu Leu Ser
145                 150                 155                 160
Asn Val Val Glu His Val Leu Tyr
                165
<210>438
<211>105
<212>PRT
<213>Chlamydia trachomatis
<400>438
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Gly Lys Glu Met Lys Arg Ile Leu Val Tyr Ser Asp Lys Gly Val Ser
  1               5                  10                  15
Pro Tyr Tyr Leu Arg His Thr Val Arg Trp Leu Lys Gln Val Ala Ala
            20                  25                  30
Pro Phe Gln Met Glu Val Cys Arg Val Asn Gly Arg Phe Leu Ile His
        35                  40                  45
Glu Pro Leu Trp Glu Asp Thr Thr Gln Leu Leu Val Ile Pro Gly Gly
    50                  55                  60
Ala Asp Val Pro Tyr His Asn Val Leu His Gly Leu Gly Thr Ala Arg
65                  70                  75                  80
Ile Asp Asn Tyr Val Arg Glu Gly Gly Cys Tyr Leu Gly Ile Leu Arg
                85                  90                  95
Arg Ser Leu Phe Trp Leu Arg Ala Val
            100                 105
<210>439
<211>285
<212>PRT
<213>Chlamydia trachomatis
<400>439
Ser Ala Val Phe Lys Leu Glu Ser Leu Leu Ser Met Met Ser Ser Pro
  1               5                  10                  15
His Pro Met Ser Ser Ser Arg Asn Thr Pro Leu Gly Val Phe Tyr Ser
            20                  25                  30
Leu Leu Ala Cys Phe Tyr Trp Gly Met Val Phe Val Ile Pro Ser Met
        35                  40                  45
Leu Gly Asn Phe Ala Asp Leu Asp Ile Val Leu Thr Arg Tyr Ser Val
    50                  55                  60
Phe Gly Ile Cys Ser Leu Ile Thr Ile Leu Tyr Lys Arg Ser Asn Ile
65                  70                  75                  80
Phe Lys Thr Val Pro Phe Phe Leu Trp Lys Lys Gly Ile Leu Trp Ala
                85                  90                  95
Phe Leu Ile Asn Ile Ala Tyr Tyr Phe Gly Ile Ala Gln Ala Val Arg
            100                 105                 110
Tyr Ser Gly Ser Ala Val Thr Val Ile Ile Ala Gly Leu Ala Pro Ile
        115                 120                 125
Ala Ile Leu Phe Tyr Ser Asn Ile Lys Lys Lys Met Leu Ser Tyr Ser
    130                 135                 140
Phe Leu Leu Ser Met Ser Gly Ile Ile Val Val Gly Ile Ile Leu Ser
145                 150                 155                 160
Asn Val Ser Glu Phe Gln Ser Glu Ser Ser Ser Ser Leu Pro Leu Tyr
                165                 170                 175
Leu Leu Gly Phe Gly Cys Val Thr Ala Ala Thr Ser Ile Trp Ala Gly
            180                 185                 190
Tyr Ile Ile Tyr Asn His Asp Phe Leu Glu Gln His Ser Glu Ile Ser
        195                 200                 205
Pro Asp Thr Trp Cys His Met Leu Gly Ile Ser Ser Leu Ile Ile Cys
    210                 215                 220
Leu Pro Leu Ile Ile Leu Gly Asp Thr Phe Gly Ile Thr His Val Thr
225                 230                 235                 240
Arg Asn Phe Leu Phe His Thr Pro Leu Ser Glu Arg Cys Leu Xaa Ile
                245                 250                 255
Val Leu Cys Ser Ala Met Gly Ile Phe Pro Leu Arg Glu Leu Ser Gln
            260                 265                 270
Leu Gly Thr Lys Leu Leu Phe Ile Cys Leu Gln Leu Phe
        275                 280                 285
<210>440
<211>110
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<213>Chlamydia trachomatis
<400>440
Phe Ser Ile Ser Tyr Pro Ser Phe Arg Lys Met Pro Xaa Asp Arg Ser
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  1               5                  10                  15
Leu Leu Cys Tyr Gly Asp Phe Ser Ser Ser Arg Ala Ile Ala Ala Trp
             20                  25                  30
Asn Lys Ala Ser Leu His Leu Ser Thr Ala Leu Leu Gly Ala Leu Leu
         35                  40                  45
Ile Phe Glu Pro Ile Phe Gly Trp Ile Leu Ser Tyr Leu Cys Lys Arg
     50                  55                  60
Glu Met Pro Ser Phe Gln Glu Gly Leu Gly Phe Phe Leu Met Leu Gly
 65                  70                  75                  80
Ala Ser Leu Cys Leu Leu Leu Ala Gln Lys Lys Ala Ser Glu Gln Glu
                 85                  90                  95
Thr Pro Ser Glu Thr Leu Ile Thr Thr Glu Ser Glu Ala Asn
            100                 105                 110
<210>441
<211>748
<212>PRT
<213>Chlamydia trachomatis
<400>441
Lys Asp Met Gly Cys Glu Glu Lys Leu Ser Gly Ile Leu Glu Leu Ile
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Leu Pro Glu Asp Pro Leu Ser Asp Gln Thr Gly Tyr Ala Phe Leu Arg
             20                  25                  30
Val Pro Tyr Lys Asn Ser Leu Val Thr Val Cys Gly His Leu Pro Leu
         35                  40                  45
Ser Leu Phe Lys Ile Gly Ser Ser Val Asp Leu Thr Gly His Trp Ser
     50                  55                  60
Val Asp Ala Ser Gly Ala Leu Val Phe Arg Phe Thr Ser Ala Ala Thr
 65                  70                  75                  80
Tyr Ser Pro Asp Ser Gly Ile Ile Ala Tyr Leu Asn Ala Gln Ile Lys
                 85                  90                  95
Gly Val Gly Pro Lys Leu Ala Gln Lys Ile Val Ser Thr Phe Gly Glu
            100                 105                 110
Asp Thr Leu Thr Val Leu Asp Ser Cys Pro Ser Lys Leu Val Glu Val
        115                 120                 125
Asp Gly Ile Ser Pro Ala Arg Cys Glu Asp Phe Ser Lys Gln Leu Gln
    130                 135                 140
Glu Gln Arg Asp Leu Arg His Ala Leu Leu Phe Leu Gln Arg His Gly
145                 150                 155                 160
Ile Ala Ile His Tyr Gly Leu Arg Leu Tyr Lys Lys Tyr Gln Asn Gln
                165                 170                 175
Thr Ile Glu Lys Val Cys Gln Asp Pro Phe Leu Leu Ala Lys Glu Met
            180                 185                 190
Tyr Gly Ile Gly Phe Lys Thr Ala Asp Leu Ile Ala Thr Cys Leu Gly
        195                 200                 205
Val Pro Leu Asn Ser Pro Asn Arg Ile Val Ala Gly Ile Gln Tyr Ser
    210                 215                 220
Leu Asp Glu Leu Gln Glu Glu Gly His Thr Cys Tyr Pro Leu Asn Asp
225                 230                 235                 240
Phe Ile Val Leu Val Glu Lys Leu Leu Asn Glu Glu Ala Pro Glu Glu
                245                 250                 255
Ile Ile Arg Lys Glu Glu Ile Arg Thr Gln Ile His Phe Leu Ser Arg
            260                 265                 270
Gln Lys Thr Val Tyr Val Lys Glu Leu Glu Gln Asp Thr Tyr Ile Trp
        275                 280                 285
Ser Arg Gln Leu Phe Leu Ala Glu Gln Gln Ile Ala Ile Asp Ile Arg
    290                 295                 300
Arg Leu Leu Phe Ser Ser Lys Arg Ile Arg Ser Ile Asn Thr Gln Glu
305                 310                 315                 320
Ala Ile Leu Glu Val Glu Asn Leu Leu Asp Leu Lys Leu Glu Glu Lys
                325                 330                 335
Gln Lys Glu Ala Leu His Ala Ser Ser Ser Gln Lys Ile His Ile Ile
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09/054,748 - 04/03/98

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            340                 345                 350
Ser Gly Gly Pro Gly Thr Gly Lys Ser Thr Ile Thr Arg Ala Ile Leu
        355                 360                 365
Ser Ile Phe Glu Lys Ile Ser Ser Pro Lys Lys Ile Ile Leu Ala Ala
    370                 375                 380
Pro Thr Gly Lys Ala Ala Lys Arg Met Thr Glu Ile Thr Gly Lys Arg
385                 390                 395                 400
Thr Gln Thr Ile His Ser Leu Leu Gln Tyr Asp Phe Lys Thr Leu Ser
                405                 410                 415
Phe Arg Lys Asn His Glu Asp Pro Ile Asp Cys Asp Leu Val Ile Val
            420                 425                 430
Asp Glu Ser Gly Met Ile Asp Thr Ile Leu Leu Gln Arg Phe Leu Ala
        435                 440                 445
Ala Leu Pro Asp His Ala Ile Leu Ile Leu Ile Gly Asp Val His Gln
    450                 455                 460
Leu Pro Ser Val Gly Pro Gly Asn Val Leu Lys Asp Leu Ile Leu Ser
465                 470                 475                 480
His His Ile Glu Val Thr Tyr Leu Thr Lys Ile Phe Arg Gln Leu Gln
                485                 490                 495
Asn Ser Asn Ile Ile Thr Asn Ala His Lys Val Asn Gln Gly Glu Phe
            500                 505                 510
Pro Val Leu Asn Ser Ser Ser Gly Lys Lys Asp Phe Leu Phe Phe Gln
        515                 520                 525
Lys Glu Asp Pro Glu Glu Ala Ile Lys His Ile Ile His Leu Val Ser
    530                 535                 540
Asp Phe Val Pro Lys Lys Phe Gly Ile Phe Thr Lys Asp Ile Gln Val
545                 550                 555                 560
Leu Ala Pro Xaa Arg Lys Gly Val Leu Gly Ile Leu Asn Leu Asn Arg
                565                 570                 575
Glu Leu Lys Ala Ala Leu Asn Pro Asn Lys Leu Phe Ile Gln Gly Lys
            580                 585                 590
Phe His Ser Phe Ser Thr Gly Asp Arg Val Met Gln Thr Arg Asn Asn
        595                 600                 605
Tyr Asn Lys Glu Val Phe Asn Gly Asp Ile Gly Tyr Val Thr Ser Ile
    610                 615                 620
Asp Leu Ser Thr Lys Ser Leu Ile Val Cys Val Asp Gly Arg Tyr Ile
625                 630                 635                 640
Ser Tyr Ser Gln Ala Glu Leu Asn Asp Leu Ile Pro Ala Tyr Ala Thr
                645                 650                 655
Ser Ile His Lys Tyr Gln Gly Ser Glu Thr Ser Cys Ile Ile Leu Pro
            660                 665                 670
Ile His Thr Ser His Tyr Val Met Leu Tyr Arg Asn Leu Leu Tyr Thr
        675                 680                 685
Ala Ile Thr Arg Gly Lys Lys Leu Val Ile Leu Val Gly Thr Lys Lys
    690                 695                 700
Ala Val Ala Ile Ala Val Arg Asn Asp Lys Val Gln His Arg Cys Thr
705                 710                 715                 720
Gly Leu Gln Gln Ala Met His Ser Leu Leu Asn Lys Pro Thr Pro Leu
                725                 730                 735
Phe Ser Pro Tyr Thr Ile Cys Arg Pro Ser Leu Gly
            740                 745
<210>442
<211>563
<212>PRT
<213>Chlamydia trachomatis
<400>442
Lys Arg Ser Phe Ser Val Gln Leu Glu Arg Arg Glu Ile Val Glu Ser
  1               5                  10                  15
Ser Arg Ile Leu Ile Thr Ser Ala Leu Pro Tyr Ala Asn Gly Pro Leu
            20                  25                  30
His Phe Gly His Ile Thr Gly Ala Tyr Leu Pro Ala Asp Val Tyr Ala
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          35                  40                  45
Arg Phe Gln Arg Leu Gln Gly Lys Glu Val Leu Tyr Ile Cys Gly Ser
     50                  55                  60
Asp Glu Tyr Gly Ile Ala Ile Thr Leu Asn Ala Glu Leu Ala Gly Met
 65                  70                  75                  80
Gly Tyr Gln Glu Tyr Val Asp Met Tyr His Lys Leu His Lys Asp Thr
                 85                  90                  95
Phe Lys Lys Leu Gly Ile Ser Val Asp Phe Phe Ser Arg Thr Thr Asn
            100                 105                 110
Ala Tyr His Pro Ala Ile Val Gln Asp Phe Tyr Arg Asn Leu Gln Glu
        115                 120                 125
Arg Gly Leu Val Glu Asn Gln Val Thr Glu Gln Leu Tyr Ser Glu Glu
    130                 135                 140
Glu Gly Lys Phe Leu Ala Asp Arg Tyr Val Val Gly Thr Cys Pro Lys
145                 150                 155                 160
Cys Gly Phe Asp Arg Ala Arg Gly Asp Glu Cys Gln Gln Cys Gly Ala
                165                 170                 175
Asp Tyr Glu Ala Arg Asp Leu Lys Glu Pro Arg Ser Lys Leu Thr Gly
            180                 185                 190
Ala Ala Leu Ser Leu Arg Asp Thr Glu His Ala Tyr Leu His Leu Glu
        195                 200                 205
Arg Met Lys Glu Asp Leu Leu Ala Phe Val Gln Gly Ile Tyr Leu Arg
    210                 215                 220
Pro His Met Arg Asn Phe Val Thr Asp Tyr Ile Glu His Leu Arg Pro
225                 230                 235                 240
Arg Ala Val Thr Arg Asp Leu Ser Trp Gly Ile Pro Val Pro Asp Leu
                245                 250                 255
Glu Asn Lys Val Phe Tyr Val Trp Phe Asp Ala Pro Ile Gly Tyr Ile
            260                 265                 270
Ser Gly Thr Met Asp Trp Ala Ala Ser Ile Gly Asp Pro Glu Ala Trp
        275                 280                 285
Lys Lys Phe Trp Leu Asp Asp Thr Val Thr Tyr Ala Gln Phe Ile Gly
    290                 295                 300
Lys Asp Asn Thr Ser Phe His Ala Val Ile Phe Pro Ala Met Glu Ile
305                 310                 315                 320
Gly Gln Ser Leu Pro Tyr Lys Lys Val Asp Ala Leu Val Thr Ser Glu
                325                 330                 335
Phe Leu Leu Leu Glu Gly Phe Gln Phe Ser Lys Ser Asp Gly Asn Phe
            340                 345                 350
Ile Asp Met Asp Ala Phe Leu Glu Thr Tyr Ser Leu Asp Lys Leu Arg
        355                 360                 365
Tyr Val Leu Ala Ala Ile Ala Pro Glu Thr Ser Asp Ser Glu Phe Ser
    370                 375                 380
Phe Gln Glu Phe Lys Thr Arg Cys Asn Ser Glu Leu Val Gly Lys Tyr
385                 390                 395                 400
Gly Asn Phe Val Asn Arg Val Leu Ala Phe Ala Val Lys Asn Gly Cys
                405                 410                 415
Thr Glu Leu Ser Ser Pro Gln Leu Glu Gln Lys Asp Leu Asp Phe Ile
            420                 425                 430
Ser Lys Ser Gln Lys Leu Ala Lys Asp Ala Ala Glu His Tyr Ala Gln
        435                 440                 445
Tyr Ser Leu Arg Lys Ala Cys Ser Thr Ile Met Glu Leu Ala Ala Leu
    450                 455                 460
Gly Asn Gly Tyr Phe Asn Asp Glu Ala Pro Trp Lys Leu Ala Lys Glu
465                 470                 475                 480
Gly Asn Trp Asn Arg Val Arg Ala Ile Leu Phe Cys Ala Cys Tyr Cys
                485                 490                 495
Gln Lys Leu Leu Ala Leu Ile Ser Tyr Pro Ile Met Pro Glu Thr Ala
            500                 505                 510
Leu Lys Ile Leu Glu Met Ile Ala Pro Tyr Ser Leu Asp Leu Gly Ser
        515                 520                 525
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Sequence Page 594 of 1000

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Gln Asp Pro Asp Arg Leu His Ser Leu Trp Thr Asp Ser Phe Phe Asp
    530                 535                 540
Tyr Ser Glu Glu Lys Phe Ser Leu Lys Glu Pro Glu Leu Leu Phe Thr
545                 550                 555                 560
Met Val Glu

<210>443
<211>101
<212>PRT
<213>Chlamydia trachomatis
<400>443
Val Met Ala Arg Lys Asp Arg Leu Thr Asn Glu Arg Leu Asn Lys Leu
  1               5                  10                  15
Phe Asp Ser Pro Phe Ser Leu Val Asn Tyr Val Ile Lys Gln Ala Lys
            20                  25                  30
Asn Lys Ile Ala Arg Gly Asp Val Arg Ser Ser Asn Val Ala Ile Glu
        35                  40                  45
Ala Leu Asn Phe Leu Asp Leu Tyr Gly Ile Gln Ser Glu Tyr Ala Glu
    50                  55                  60
Arg Asp Asp Arg Glu Arg His Leu Ser Ala Thr Gly Glu Arg Arg Arg
65                  70                  75                  80
Glu Gln Gly Phe Gly Thr Ser Arg Arg Lys Asp Pro Ser Leu Tyr Asn
                85                  90                  95
Trp Ser Asp Val Lys
            100
<210>444
<211>373
<212>PRT
<213>Chlamydia trachomatis
<400>444
Ala Cys Ile Leu Pro Arg Gly Lys Val Phe Leu Gly Ile Asp Asp Ser
  1               5                  10                  15
Lys Lys Leu Thr Pro Lys Gln Arg Arg Tyr Leu Tyr Glu Leu Leu Leu
            20                  25                  30
Glu Asp Pro Glu Val Asp Cys Gly Val Gly Val Ile Ser Val Glu Arg
        35                  40                  45
Ile Asp Glu Ile Asn Ile Leu Glu Ala Thr Lys Glu Ala Met Val Gln
    50                  55                  60
Ala Ile Ala Ser Leu Arg Ser Thr Pro Asp Phe Leu Leu Val Asp Gly
65                  70                  75                  80
Leu Phe Leu Pro His Lys Ile Pro Ser Leu Lys Ile Ile Lys Gly Asp
                85                  90                  95
Ala Arg Ser Val Ser Ile Ala Ala Ala Ser Ile Ile Ala Lys Glu Tyr
            100                 105                 110
Arg Asp Glu Leu Met Arg Lys Leu His Val Glu Tyr Pro Glu Tyr Gly
        115                 120                 125
Phe Asp Lys His Lys Gly Tyr Gly Thr Ala Ala His Leu Gln Ala Leu
    130                 135                 140
Lys His Phe Gly Pro Cys Val Tyr His Arg Lys Ser Phe Ser Pro Val
145                 150                 155                 160
Lys Glu Ser Ile Xaa Arg Gly Ser Met Ser Val Lys Val Ile Ser Pro
                165                 170                 175
Phe Ser Gln Asp Gly Val Gln Phe Phe Pro Lys Leu Phe Ile Ile Ser
            180                 185                 190
Ala Pro Ala Gly Ala Gly Lys Thr Thr Leu Thr His Met Leu Gln Arg
        195                 200                 205
Glu Phe Pro Asp Ala Phe Glu Lys Thr Val Ser Ser Thr Thr Arg Ser
    210                 215                 220
Ala Arg Pro Gly Glu Val His Gly Val Asp Tyr Leu Phe Val Ser Glu
225                 230                 235                 240
Asp Asp Phe Lys Gln Ser Leu Asp Arg Glu Asp Phe Leu Glu Trp Val
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                245                 250                 255
Phe Leu Phe Gly Thr Tyr Tyr Gly Thr Ser Lys Ala Glu Ile Ser Arg
            260                 265                 270
Val Leu Gln Lys Gly Lys His Cys Ile Ala Val Ile Asp Val Gln Gly
        275                 280                 285
Ala Leu Ala Leu Lys Lys Gln Met Pro Ala Val Thr Ile Phe Ile Gln
    290                 295                 300
Ala Pro Ser Gln Glu Glu Leu Glu Arg Arg Leu Asn Ala Arg Asp Ser
305                 310                 315                 320
Glu Lys Asp Phe Gln Lys Lys Glu Arg Leu Glu His Ser Ala Val Glu
                325                 330                 335
Ile Ala Ala Ala Ser Glu Phe Asp Tyr Val Val Val Asn Asp Asp Leu
            340                 345                 350
Ile Thr Ala Tyr Gln Val Leu Arg Ser Ile Phe Ile Ala Glu Glu His
        355                 360                 365
Arg Met Ser His Gly
    370
<210>445
<211>123
<212>PRT
<213>Chlamydia trachomatis
<400>445
Asn Thr Met Gly Asn Leu Ile Lys Glu Leu Gln Asp Glu Gln Cys Arg
  1               5                  10                  15
Thr Asp Leu Ala Asp Phe Cys Val Gly Asp Thr Ile Arg Val Ala Thr
            20                  25                  30
Asn Ile Ser Glu Gly Gly Lys Glu Arg Val Gln Val Phe Gln Gly Thr
        35                  40                  45
Val Met Ala Arg Lys Gly Gly Gly Ala Gly Glu Thr Val Ser Leu His
    50                  55                  60
Arg Val Ala Tyr Gly Glu Gly Met Glu Lys Ser Phe Leu Leu Asn Ser
65                  70                  75                  80
Pro Lys Ile Val Ser Ile Glu Val Val Lys Arg Gly Lys Val Ser Arg
                85                  90                  95
Ala Arg Leu Phe Tyr Leu Arg Gly Lys Thr Gly Lys Ala Ala Lys Val
            100                 105                 110
Lys Glu Leu Ile Gly Ser Arg Ala Ala Lys Lys
        115                 120
<210>446
<211>281
<212>PRT
<213>Chlamydia trachomatis
<400>446
Lys His Lys Lys Lys Glu Val Gln Gly His Ile Leu Ile Ser Ala Gly
  1               5                  10                  15
Gln Leu Leu Ser Ala Lys Lys Ser Arg Glu Leu Ala Ser Cys Ser His
            20                  25                  30
Leu Val Leu Leu Cys Gly His Tyr Glu Gly Ile Asp Glu Arg Ala Leu
        35                  40                  45
Thr Ala Glu Val Asp Glu Glu Ile Ser Ile Gly Asp Tyr Val Leu Thr
    50                  55                  60
Asn Gly Cys Ala Ala Ala Leu Val Leu Val Asp Ala Leu Ala Arg Phe
65                  70                  75                  80
Ile Pro Gly Ile Leu Gly Asn Gln Glu Ser Ala Glu Tyr Asp Ser Leu
                85                  90                  95
Glu Asn Gly Leu Leu Glu Gly Pro Gln Tyr Thr Arg Pro Arg Val Phe
            100                 105                 110
Glu Gly Glu Ser Val Pro Glu Val Leu Leu Cys Gly Asp His Gln Lys
        115                 120                 125
Ile Ala Asp Trp Arg Lys Gln Val Ser Leu Glu Arg Thr Arg Glu Arg
    130                 135                 140
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09/09/2004 08:50:50

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Arg Pro Asp Leu Tyr Leu Gln Tyr Phe Tyr Gly Asn Ser Ala Cys Leu
145                 150                 155                 160
Ser Thr Gln Glu Asp Leu Pro Arg Ile Glu Val Val Ser Pro Lys Thr
                165                 170                 175
Phe Ser Val Val Leu Glu Val Gln Asp Leu Arg Lys Ala Lys Lys Phe
            180                 185                 190
Tyr Ser Arg Met Phe Gly Lys Glu Cys Trp Asp Gly Asp Lys Leu Phe
        195                 200                 205
Leu Leu Gly Lys Thr Ser Leu Tyr Leu Gln Gln Thr Lys Glu Thr Arg
    210                 215                 220
Gly Pro Thr Thr Val Phe Ile Glu Leu Glu Thr Asp His Asp Phe Val
225                 230                 235                 240
Arg Phe Leu Lys Arg Trp Glu Met Leu Gly Gly Glu Leu Gly Glu Gln
                245                 250                 255
Gly Thr Gly Gly Phe Pro Leu Arg Gln Val Phe Asp Leu Asp Gly His
            260                 265                 270
Ile Trp Val Val Ser Cys Val Gln Lys
        275                 280
<210>447
<211>118
<212>PRT
<213>Chlamydia trachomatis
<400>447
Met Glu Ile Asp Ile Leu Ser Leu Phe Pro Asp Tyr Phe Ala Ser Pro
  1               5                  10                  15
Leu Gln Ala Thr Ile Leu Gly Arg Ala Ile Lys Gln Gly Ala Leu Ser
            20                  25                  30
Val Arg Ser Arg Asp Ile Arg Glu Phe Gly Leu Gly Lys Trp Lys Gln
        35                  40                  45
Val Asp Asp Ser Pro Tyr Asn Gly Glu Gly Met Leu Leu Met Ala Glu
    50                  55                  60
Pro Val Val Gln Ala Ile Arg Ser Ile Arg Arg Lys Lys Ser Lys Val
65                  70                  75                  80
Ile Tyr Leu Ser Pro Gln Asp Asn Phe Phe Pro Gln Arg Lys Val Val
                85                  90                  95
Asn Trp Arg Arg Val Arg Ile Trp Tyr Cys Tyr Val Asp Thr Met Arg
            100                 105                 110
Glu Leu Met Lys Gly Arg
        115
<210>448
<211>116
<212>PRT
<213>Chlamydia trachomatis
<400>448
Val Ala Leu Lys Ile Arg Leu Arg Gln Gln Gly Arg Lys Asn His Val
  1               5                  10                  15
Val Tyr Arg Leu Val Leu Ala Asp Val Glu Ser Pro Arg Asp Gly Lys
            20                  25                  30
Tyr Ile Glu Leu Leu Gly Trp Tyr Asp Pro His Ser Glu Gln Asn Tyr
        35                  40                  45
Gln Leu Lys Ser Glu Arg Ile Phe Tyr Trp Leu Asn Gln Gly Ala Glu
    50                  55                  60
Leu Thr Glu Lys Ala Gly Ala Leu Val Lys Gln Gly Ala Pro Gly Val
65                  70                  75                  80
Tyr Ala Glu Leu Met Ala Lys Lys Val Ala Arg Arg Ala Val Val Arg
                85                  90                  95
Gln Lys Arg Arg Ala Tyr Arg Gln Arg Leu Ala Ala Arg Lys Ala Glu
            100                 105                 110
Ala Ala Ala Lys
        115
<210>449
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<211>448
<212>PRT
<213>Chlamydia trachomatis
<400>449

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Met Ile Ser Ser Leu Ser Gln Lys Leu Ser Asn Ile Phe Ser Ser Leu
  1               5                  10                  15
Phe Thr Ala Lys Arg Val Thr Glu Glu Gly Ile Ser Asp Ser Ile Arg
             20                  25                  30
Glu Val Arg Leu Ala Leu Leu Asp Ala Asp Val Asn Tyr Gln Ala Val
         35                  40                  45
Lys Asp Phe Ile Ala Lys Val Lys Gln Lys Val Val Gly Glu Glu Val
     50                  55                  60
Trp Lys His Val Ser Pro Gly Gln Gln Phe Ile Lys Cys Leu His Glu
 65                  70                  75                  80
Glu Leu Ser Ser Ser Leu Ala Ser Glu Gln Thr Ala Val Ser Leu Arg
                 85                  90                  95
Gly Cys Pro Ala Val Ile Leu Leu Cys Gly Leu Gln Gly Ala Gly Lys
            100                 105                 110
Thr Thr Thr Cys Ala Lys Leu Ala Asp Tyr Phe Leu Arg Glu Lys Lys
        115                 120                 125
Ala Lys Lys Val Leu Val Ala Ser Cys Asp Leu Lys Arg Phe Ser Ala
    130                 135                 140
Val Glu Gln Leu Glu Gly Leu Val Lys Gln Thr Gly Ala Asp Phe Phe
145                 150                 155                 160
Arg Arg Glu Gly Asn Asp Pro Val Asp Met Ala Ala Glu Ala Val Gln
                165                 170                 175
His Ala Lys Ser Gln Gly Tyr Asp Leu Val Leu Val Asp Thr Ala Gly
            180                 185                 190
Arg Leu His Val Asp Asp Ala Leu Met Asp Glu Leu Val Ala Ile Ala
        195                 200                 205
Arg Val Thr Ser Pro Cys Glu Thr Leu Phe Val Met Asn Leu Ala Met
    210                 215                 220
Gly Gln Asp Ala Val Val Thr Ala Lys Ala Phe Asp Glu Arg Leu Gly
225                 230                 235                 240
Leu Thr Gly Val Val Val Ser Met Ala Asp Gly Asp Ala Arg Ala Gly
                245                 250                 255
Ala Val Leu Ser Val Lys Ser Leu Leu Asn Lys Pro Ile Lys Phe Glu
            260                 265                 270
Gly Cys Gly Glu Lys Ile Lys Asp Leu Arg Pro Phe Asn Ala Gln Ser
        275                 280                 285
Met Ala Glu Arg Ile Leu Gly Met Gly Asp Thr Ile Ser Leu Val Asp
    290                 295                 300
Lys Met Arg Glu Cys Ile Ser Glu Glu Glu Asn Lys Glu Leu Glu Glu
305                 310                 315                 320
Lys Leu Thr Lys Ala Thr Phe Thr Tyr Glu Asp Phe His Lys Gln Ile
                325                 330                 335
Leu Ala Phe Arg Arg Leu Gly Pro Leu Arg Lys Ile Met Asn Met Met
            340                 345                 350
Pro Ser Phe Gly Gly Ala Lys Pro Ser Asp Lys Asp Leu Glu Glu Ser
        355                 360                 365
Glu Lys Gln Met Lys Arg Asn Glu Ala Ile Ile Leu Ser Met Thr Pro
    370                 375                 380
Glu Glu Arg Lys Glu Leu Val Glu Leu Ser Met Ser Arg Met Lys Arg
385                 390                 395                 400
Ile Ala Ala Gly Cys Gly Leu Thr Leu Gly Asp Val Asn Gln Phe Arg
                405                 410                 415
Lys Gln Met Met Gln Ser Lys Lys Phe Phe Lys Gly Met Thr Arg Glu
            420                 425                 430
Lys Met Glu Gln Met Gly Lys Lys Met Ser Gly Gly Asn Leu Trp Arg
        435                 440                 445
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<400>450
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20 25 30
Glu Ile Ser Ser Arg Ser Ala Leu His Gln Ala Lys Leu Ser Ser Glu
35 40 45
Glu Gln Ser Leu Tyr Trp Lys Arg Leu Arg Lys Arg Gly Asp Arg Cys
50 55 60
Pro Thr Ala Tyr Ile His Gly Lys Val His Phe Leu Gly Val Glu Leu
65 70 75 80
Gln Val Thr Pro Gln Val Leu Ile Pro Arg Gln Glu Thr Glu Ile Phe
85 90 95
Val Glu Gln Ile Ile Gly Tyr Leu Gln Met His Lys Glu Lys Thr Thr
100 105 110
Phe Tyr Asp Val Cys Cys Gly Ser Gly Cys Ile Gly Leu Ala Val Arg
115 120 125
Lys His Cys Pro His Val Arg Val Thr Leu Ser Asp Ile Ser Pro Glu
130 135 140
Ala Leu Ala Ile Ala Glu Ser Asn Ala Arg Ser Asn Ala Leu Ala Val
145 150 155 160
Asp Phe Leu Leu Gly Asp Leu Phe Asp Pro Phe Ser Phe Pro Ala Asp
165 170 175
Val Leu Val Cys Asn Pro Pro Tyr Leu Ser Tyr Lys Glu Phe Phe Glu
180 185 190
Ser Asp Pro Glu Val Arg Cys His Glu Pro Trp Lys Ala Leu Val Gly
195 200 205
Gly Val Ser Gly Leu Glu Phe Tyr His Arg Ile Ala Thr His Ile His
210 215 220
Lys Ile Leu Val Ser Gly Gly Val Gly Trp Leu Glu Ile Gly Ser Thr
225 230 235 240
Gln Gly Glu Asp Val Lys Gln Ile Phe His Ala Lys Gly Ile Arg Gly
245 250 255
Arg Val Leu Lys Asp Tyr Ala Gln Leu Asp Arg Phe Phe Phe Leu Xaa
260 265 270
Asn Gln Ala Asn Asp Ala Val Ser Ser Gly Glu Val Ser Gly Phe Ser
275 280 285
Glu Arg
290
<210>451
<211>232
<212>PRT
<213>Chlamydia trachomatis
<400>451
Gly Xaa Cys Val Arg Met Tyr His Leu Tyr Ala Ala Ser Lys Gly Trp
1 5 10 15
Gln Cys Glu Val Leu Ser Ala Ser Glu Ser Asp Leu Gly Gly Tyr Lys
20 25 30
Glu Tyr Val Met Gly Ile Ser Gly Ala Ser Val Lys Arg Phe Leu Gln
35 40 45
Tyr Glu Ala Gly Thr His Arg Val Gln Arg Val Pro Glu Thr Glu Thr
50 55 60
Gln Gly Arg Val His Thr Ser Ala Val Thr Val Ala Val Leu Pro Glu
65 70 75 80
Pro Ala Glu Asp Asp Glu Glu Val Phe Ile Asp Glu Lys Asp Leu Arg
85 90 95
Ile Asp Thr Phe Arg Ser Ser Gly Ala Gly Gly Gln His Val Asn Val
100 105 110

Thr Asp Ser Ala Val Arg Ile Thr His Ile Pro Ser Gly Val Val Val
115 120 125
Thr Cys Gln Asp Glu Arg Ser Gln His Lys Asn Lys Ala Lys Ala Met
130 135 140
Arg Val Leu Lys Ala Arg Ile Arg Asp Ala Glu Val Gln Lys Arg Ala
145 150 155 160
Gln Glu Ala Ser Ala Met Arg Ser Ala Gln Val Gly Ser Gly Asp Arg
165 170 175
Ser Glu Arg Ile Arg Thr Tyr Asn Phe Pro Gln Asn Arg Val Thr Asp
180 185 190
His Arg Ile Gly Leu Thr Leu Tyr Asn Leu Asp Arg Val Met Glu Gly
195 200 205
Glu Leu Asp Met Ile Thr Thr Ala Leu Val Thr His Val His Arg Gln
210 215 220
Leu Phe Gly His Glu Glu Thr Ala
225 230
<210>452
<211>628
<212>PRT
<213>Chlamydia trachomatis
<400>452
Met Thr Ser Ser Tyr Met Ser Arg Leu Tyr Ser Leu Asn Lys Ser Arg
1 5 10 15
Arg Ile Leu His Ser Ser Phe Arg Leu Leu Lys Ser Thr Lys Met Leu
20 25 30
Ser His Pro Glu Thr Gln Lys Glu Leu Gln Glu Val Leu Lys Gln Leu
35 40 45
Glu Glu Ala Ile Leu Asp Gln Asn Arg Glu Asp Ala Ser Leu Phe Ala
50 55 60
Lys Gln Ala Gln Ala Ile Gln Lys Arg Phe Pro Lys Ser Lys Leu Arg
65 70 75 80
Ala Thr Phe Asp Leu Ile Tyr Ala Leu Thr Phe Ala Ala Ile Leu Ala
85 90 95
Phe Leu Ile Arg Gln Phe Trp Phe Glu Leu Tyr Glu Val Pro Thr Gly
100 105 110
Ser Met Arg Pro Thr Ile Leu Glu Gln Asp Arg Ile Leu Val Ser Lys
115 120 125
Thr Thr Phe Gly Leu Arg Leu Pro Phe Ser Asn Arg Ser Ile Gly Tyr
130 135 140
Thr Pro Glu Ala Ile Thr Arg Gly Glu Leu Val Val Phe Thr Val Gly
145 150 155 160
Asp Leu Pro Ile Pro Asn Ala Asp Thr Lys Tyr Phe Gly Ile Ile Pro
165 170 175
Gly Lys Lys Arg Tyr Ile Lys Arg Cys Met Gly Lys Pro Gly Asp Thr
180 185 190
Val Tyr Phe Tyr Gly Gly Lys Ile Tyr Gly Ile Asp Cys Asp Gly Glu
195 200 205
Pro Ile Phe Pro Gln Asn Thr Glu Asn Leu Tyr His Val Pro Tyr Ile
210 215 220
Ser Phe Asp Gly Thr Pro Glu Ile Leu Thr His Ser Glu Glu Gln Thr
225 230 235 240
Asp Val Ile Phe Asn Gln Phe His Thr Pro Cys Gly Lys Ile Ser Leu
245 250 255
Pro Gln Gln Ala Ser Tyr Gly Gln Phe Phe Tyr Lys Asn Ala Trp His
260 265 270
Asn Asp Thr Pro Tyr Ala Leu Lys Asp Pro His Asn Glu Pro Val Ser
275 280 285
Tyr Ala Asp Leu Phe Gly Ile Lys Asn Phe Ala Met Val Arg Ile Leu
290 295 300
Thr Lys Lys Gln Ala Ala Leu Thr His Val Leu Pro Ser Pro Leu Ser
305 310 315 320

Asp Thr Tyr Leu Glu Ile Ala His Thr Pro Asn Val Ser Tyr Pro His
325 330 335
Pro His Leu Arg Pro Phe Glu Thr Gln Arg Ile Pro Thr Ile Glu Pro
340 345 350
Met Lys Thr Leu Leu Pro Leu Arg Lys Glu His Ile His Leu Ile Arg
355 360 365
Asn Asn Leu Thr Thr Ser Arg Phe Thr Val Val Asp Gly Tyr Ala Tyr
370 375 380
Lys Tyr Gln Pro Ala Pro Met Asn Thr Ser Gly Met Val Arg Met Phe
385 390 395 400
Ala Leu Pro Met Pro Asn Ile Pro Asp Gly Cys Tyr Glu Phe Ser Lys
405 410 415
Gly Asp Val Phe Lys Ile Asn Met Gly Gly Phe Arg Thr Lys Leu Lys
420 425 430
Gln Pro His Pro Leu Thr Gln Leu Ser Asn Ser Gln Val Ile Asp Leu
435 440 445
Phe Asn Cys Gly Ile Ser Phe His Thr Ile Tyr Ile Pro Lys Asn Pro
450 455 460
Gln Tyr Ala Pro Phe Pro Asn Arg Tyr Ala Phe Phe Asn Gln Gly Asn
465 470 475 480
Leu Phe Val Met Asp Ser Pro Val Phe Ile Asp Ser Asp Pro Ala Leu
485 490 495
Gln Lys Phe Ile Val Ser Glu Glu Glu Lys Glu Leu Gln Ser Ser Glu
500 505 510
Asp Lys Pro Tyr Ile Ala Phe Ile Asp Arg Gly Pro Pro Pro Glu Ser
515 520 525
Thr Glu Glu Phe Val Ser Phe Ile Thr Asn Phe Gly Leu Lys Ile Pro
530 535 540
Glu Gly His Val Leu Val Leu Gly Asp Asn Cys Pro Met Ser Ala Asp
545 550 555 560
Ser Arg Asp Phe Gly Phe Val Pro Val Glu Asn Leu Leu Gly Ser Pro
565 570 575
Val Gly Ile Phe Trp Pro Ile Asn Arg Leu Gly Leu Leu Ser Ser Asn
580 585 590
Ile Thr Pro Leu Ser Leu Pro Gly Tyr Leu Val Asn Gly Leu Ala Leu
595 600 605
Gly Ala Phe Leu Tyr Cys Ile Gly Leu Trp Tyr Tyr Arg Lys Asn His
610 615 620
Arg Leu Phe Pro
625

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<211>539
<212>PRT
<213>Chlamydia trachomatis
<400>453
Lys Leu Thr Arg Thr Gly Asn Leu Ser Glu Glu Ser Leu Met Phe Ser
1 5 10 15
Ile Val Gly Leu Ile Leu Glu Leu Cys His Met Leu Arg Ile Ile Thr
20 25 30
Leu Leu Lys Glu Gln Lys Lys Arg Arg Leu Cys Phe Pro Ala Asp Phe
35 40 45
Ile Ala Glu Gly Leu Asp Gln Thr Arg Gly Trp Phe Tyr Thr Leu Thr
50 55 60
Val Ile Ala Ala Ala Leu Phe Asp Gln Pro Ala Phe Lys Asn Val Ile
65 70 75 80
Val Asn Gly Ile Ile Leu Ala Glu Asp Gly Asn Lys Met Ser Lys Arg
85 90 95
Leu Asn Asn Tyr Pro Ser Pro Lys Met Ile Met Asp Ala Tyr Gly Ala
100 105 110
Asp Ala Leu Arg Leu Tyr Leu Leu Asn Ser Val Val Val Lys Ala Glu
115 120 125

Asp Leu Arg Phe Ser Asp Lys Gly Val Glu Ser Val Leu Lys Gln Val
130 135 140
Leu Leu Pro Leu Ser Asn Ala Leu Ala Phe Tyr Asn Thr Tyr Ala Glu
145 150 155 160
Leu Tyr Gly Phe Asp Pro Lys Glu Thr Asp Asn Ile Glu Leu Ala Glu
165 170 175
Ile Asp Arg Trp Ile Leu Ser Ser Leu Tyr Ser Leu Leu Gly Lys Thr
180 185 190
Arg Glu Ser Met Ser Gln Tyr Asp Leu His Ala Ala Val Asn Pro Phe
195 200 205
Val Asp Phe Ile Glu Asp Leu Thr Asn Trp Tyr Ile Arg Arg Ser Arg
210 215 220
Arg Arg Phe Trp Asp Ala Glu Asp Ser Thr Asp Arg Arg Ala Ala Phe
225 230 235 240
Ser Thr Leu Tyr Glu Val Leu Val Val Phe Ser Lys Val Ile Ala Pro
245 250 255
Phe Ile Pro Phe Ile Ser Glu Asp Met Tyr Gln Gln Leu Arg Gly Glu
260 265 270
Thr Asp Pro Glu Ser Val His Leu Cys Asp Phe Pro His Val Val Leu
275 280 285
Glu Lys Ile Leu Pro Asn Leu Glu Arg Lys Met Gln Asp Ile Arg Glu
290 295 300
Ile Val Ala Leu Gly His Ser Leu Arg Lys Glu His Lys Leu Lys Val
305 310 315 320
Arg Gln Pro Leu Gln Asn Val Tyr Ile Val Gly Ser Gln Glu Arg Met
325 330 335
Glu Ala Leu Ser Gln Val Gly Ser Leu Ile Gly Glu Glu Leu Asn Val
340 345 350
Lys Asp Val His Phe Cys Ser Glu Thr Pro Glu Tyr Val Thr Thr Leu
355 360 365
Ile Lys Pro Asn Phe Arg Thr Leu Gly Lys Lys Val Gly Asn Arg Leu
370 375 380
Pro Glu Ile Gln Arg Ala Leu Ala Gly Leu Pro Gln Glu Gln Ile Gln
385 390 395 400
Ala Phe Met His Lys Gly Gln Met Val Val Ser Leu Gly Glu Glu Thr
405 410 415
Ile Ser Leu Asp Lys Glu Asp Ile Thr Val Ser Trp Ala Ser Ala Glu
420 425 430
Gly Phe Val Ala Arg Ser Ser Ala Ser Phe Val Ala Val Leu Asp Cys
435 440 445
Gln Leu Thr Glu Pro Leu Ile Met Glu Gly Ile Ala Arg Glu Leu Val
450 455 460
Asn Lys Ile Asn Thr Met Arg Arg Asn Gly Lys Leu His Val Ser Asp
465 470 475 480
Arg Ile Ala Ile Arg Leu His Ala Pro Val Ile Val Gln Glu Ala Phe
485 490 495
Ala Leu His Lys Glu Tyr Ile Cys Glu Glu Thr Leu Thr Thr Ser Val
500 505 510
Ser Val Ile Asp Tyr Lys Glu Gly Glu Glu Trp Asp Ile Asn Gly His
515 520 525
Ala Val Ser Phe Val Leu Glu Arg Val Glu Arg
530 535

<210>454
<211>548
<212>PRT
<213>Chlamydia trachomatis
<400>454
Val Asn Asn Gln Arg Met Asp Asn Glu Asp Lys Ile Ser Ile Ser Ala
1 5 10 15
Lys Glu Glu Lys Ile Leu Ser Phe Trp Lys Glu Gln Asp Ile Phe Gln
20 25 30

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Lys Thr Leu Asp Asn Arg Glu Gly Cys Pro Thr Phe Ser Phe Tyr Asp
        35                  40                  45
Gly Pro Pro Phe Ala Thr Gly Leu Pro His Tyr Gly His Leu Leu Ala
    50                  55                  60
Gly Thr Ile Lys Asp Val Val Cys Arg Tyr Ala Ser Met Asp Gly His
65                  70                  75                  80
Tyr Val Pro Arg Arg Phe Gly Trp Asp Cys His Gly Val Pro Val Glu
                85                  90                  95
Tyr Glu Val Glu Lys Ser Leu Gly Leu Thr Glu Pro Gly Ala Ile Glu
            100                 105                 110
Arg Phe Gly Val Ala Asn Phe Asn Glu Glu Cys Arg Lys Ile Val Phe
        115                 120                 125
Arg Tyr Ala Asp Glu Trp Lys Tyr Phe Val Asp Arg Ile Gly Arg Trp
    130                 135                 140
Val Asp Phe Ser Ala Thr Trp Arg Thr Met Asp Leu Ser Phe Met Glu
145                 150                 155                 160
Ser Val Trp Trp Val Phe Arg Ser Leu Tyr Asp Gln Gly Leu Val Tyr
                165                 170                 175
Glu Gly Thr Lys Val Val Pro Phe Ser Thr Lys Leu Gly Thr Pro Leu
            180                 185                 190
Ser Asn Phe Glu Ala Gly Gln Asn Tyr Lys Glu Val Asp Asp Pro Ser
        195                 200                 205
Val Val Val Lys Phe Ala Leu Gln Asp Asn Gln Gly Phe Leu Leu Ala
    210                 215                 220
Trp Thr Thr Thr Pro Trp Thr Leu Val Ser Asn Met Ala Leu Ala Val
225                 230                 235                 240
His Pro Glu Leu Thr Tyr Val Arg Ile Lys Asp Lys Glu Ser Gly Asp
                245                 250                 255
Glu Tyr Ile Leu Gly Gln Glu Ser Leu Pro Arg Trp Phe Pro Asp Arg
            260                 265                 270
Glu Ser Tyr Glu Trp Ile Gly Gln Leu Ser Gly Lys Ser Leu Val Gly
        275                 280                 285
Gln Ser Tyr Glu Pro Leu Phe Pro Tyr Phe Gln Asp Lys Lys Glu Leu
    290                 295                 300
Gly Ala Phe Arg Ile Leu Pro Ala Asp Phe Ile Glu Glu Ser Glu Gly
305                 310                 315                 320
Thr Gly Ile Val His Met Ala Pro Ala Phe Gly Glu Ala Asp Phe Phe
                325                 330                 335
Ala Cys Gln Glu His Asn Val Pro Leu Val Cys Pro Val Asp Asn Gln
            340                 345                 350
Gly Cys Tyr Thr Ala Glu Val Lys Asp Phe Val Gly Glu Tyr Ile Lys
        355                 360                 365
Ser Ala Asp Lys Gly Ile Ala Arg Arg Leu Lys Asn Glu Asn Lys Leu
    370                 375                 380
Phe Tyr Gln Gly Thr Val Arg His Arg Tyr Pro Phe Cys Trp Arg Thr
385                 390                 395                 400
Asp Ser Pro Leu Ile Tyr Lys Ala Val Asn Ser Trp Phe Val Ala Val
                405                 410                 415
Glu Lys Val Lys Ser Lys Met Leu Lys Ala Asn Glu Ser Ile His Trp
            420                 425                 430
Thr Pro Gly His Ile Lys Gln Gly Arg Phe Gly Lys Trp Leu Glu Gly
        435                 440                 445
Ala Arg Asp Trp Ala Ile Ser Arg Asn Arg Tyr Trp Gly Thr Pro Ile
    450                 455                 460
Pro Ile Trp Arg Ser Asp Asp Gly Glu Leu Leu Val Ile Gly Ser Ile
465                 470                 475                 480
Gln Glu Leu Glu Ala Leu Ser Gly Gln Lys Ile Val Asp Leu His Arg
                485                 490                 495
His Phe Ile Asp Glu Ile Glu Ile Asn Gln Asn Gly Lys Ser Phe Arg
            500                 505                 510
Arg Ile Pro Tyr Val Phe Asp Cys Trp Phe Asp Ser Gly Ala Met Pro
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Sequence Listing

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        515                 520                 525
Tyr Ala Gln Asn His Tyr Pro Phe Glu Arg Ala Glu Glu Thr Glu Ala
    530                 535                 540
Leu Leu Pro Ser
545
<210>455
<211>177
<212>PRT
<213>Chlamydia trachomatis
<400>455
Lys Leu Tyr Leu Phe Lys Gly Val Phe Phe Val Tyr Val Phe Ser Asn
  1               5                  10                  15
Thr Phe Phe Phe Met Gln His Ala His Asn Ala Asp Ser Phe Pro Ala
            20                  25                  30
Trp Asp Cys Leu Gln His Asn Tyr Leu Arg Arg Asn Ala Leu Thr Ser
        35                  40                  45
Phe Cys Ser Tyr Val Pro Ile Leu Ser Thr Val Val Gly Ile Arg Thr
    50                  55                  60
Leu Tyr Asn Met Arg Lys Leu His Gln Ala Phe Val Arg Arg Thr Gly
65                  70                  75                  80
Gly Phe Leu Cys Gln Asn Asp Pro Asn Ile Pro Cys Asn Lys Phe Pro
                85                  90                  95
Cys Ser Ile Ile Arg Lys Glu Trp Pro Gln Val His Thr Lys Ala Met
            100                 105                 110
Gln Glu Val Phe Gly Ile Lys Ala Leu Val Cys Leu Gly Ser Leu Ile
        115                 120                 125
Leu Lys Ile Phe Arg Ala Val Lys Ala Phe Phe His Arg Thr Phe Ser
    130                 135                 140
Pro Ser Leu Leu Pro Glu Gln Asp Ala Ser Ile Gln Leu Pro Asp Ser
145                 150                 155                 160
Pro Gln Ser Gly Ile Pro Glu Glu Thr Leu Ser Glu Thr Pro Arg Ser
                165                 170                 175
Ser

<210>456
<211>160
<212>PRT
<213>Chlamydia trachomatis
<400>456
Lys Asn Lys Arg Leu Gln Arg Phe Leu Phe Leu Leu Pro Ala Val Val
  1               5                  10                  15
Thr Glu Leu Ala Gln Asp Leu Ser Ser Val Lys Gly Ser Leu Leu Ser
            20                  25                  30
His Tyr Ile Arg Lys Lys Gly Phe Val Lys Ala Ser Pro Val Ile Glu
        35                  40                  45
Gly Arg Glu Ser Phe Glu Arg Ser Leu Phe Ala Val Trp Val Ser Leu
    50                  55                  60
Gln Pro Glu Glu Ile Arg His Gln Leu Thr Met Glu Ser Phe Tyr Arg
65                  70                  75                  80
Asp Glu Gln Lys Lys Lys Arg Val Leu Thr Gly Glu Leu Glu Val Tyr
                85                  90                  95
Pro His Ile Val Lys Asn Asn Pro Gly Asp Tyr Leu Leu Lys Asn Gly
            100                 105                 110
Glu Asp Val Val Ala Phe Val Tyr Ala Thr Ser Ile Asp Leu Ser Lys
        115                 120                 125
Trp Leu Gly Lys Pro Val Val Leu Glu Cys Val Ser Arg Pro Asn Asn
    130                 135                 140
His Phe Ala Phe Pro Ala Tyr Ile Val Leu Ser Val Lys Glu Gly Ala
145                 150                 155                 160
<210>457
<211>359
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<212>PRT
<213>Chlamydia trachomatis
<400>457
Lys Ile Glu Gln Ser Arg Leu Thr Phe Ser Phe Lys Ser Ile Ile Ile
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Pro Ser Leu Glu Asp Glu Ser Ser Arg Ala Val Asn Ala Ser Leu Glu
20 25 30
Ala Gln Ile Leu Ala Asn Cys Arg Ser Phe Cys Val Arg Thr Leu Ser
35 40 45
Ile Ser Met Leu Ile Phe Ala Leu Ser Cys Gly Ala Asp Ala Cys Leu
50 55 60
Cys Ala Ala Asp Leu Ser Lys Ala Lys Val Glu Ala Ser Val Gly Asp
65 70 75 80
Arg Ala Ala Phe Ser Pro Phe Thr Gly Glu Ile Lys Gly Asn Arg Val
85 90 95
Arg Leu Arg Leu Ala Pro His Thr Asp Ser Phe Ile Ile Lys Glu Leu
100 105 110
Ser Lys Gly Asp Cys Leu Ala Val Leu Gly Glu Ser Lys Asp Tyr Tyr
115 120 125
Val Val Ala Ala Pro Glu Gly Val Arg Gly Tyr Val Phe Arg Thr Phe
130 135 140
Val Leu Asp Asn Val Ile Glu Gly Glu Lys Val Asn Val Arg Leu Glu
145 150 155 160
Pro Ser Thr Ser Ala Pro Ile Leu Ala Arg Leu Ser Lys Gly Thr Val
165 170 175
Val Lys Thr Leu Gly Ala Ala Gln Gly Lys Trp Ile Glu Ile Ala Leu
180 185 190
Pro Lys Gln Cys Val Phe Tyr Val Ala Lys Asn Phe Val Lys Asn Val
195 200 205
Gly Ala Leu Asp Leu Tyr Asn Gln Lys Glu Gly Gln Lys Lys Leu Ala
210 215 220
Leu Asp Leu Leu Ser Ser Ala Met Asp Phe Ala Asp Ala Glu Leu Gln
225 230 235 240
Lys Lys Ile Glu Asp Ile Asp Leu Asp Ala Ile Tyr Lys Lys Met Asn
245 250 255
Leu Ala Gln Ser Glu Glu Phe Lys Asp Val Pro Gly Leu Gln Ser Leu
260 265 270
Val Gln Lys Ala Leu Glu Arg Phe Gln Glu Ala Phe Leu Ala Lys Ser
275 280 285
Leu Glu Lys Ser Ala Val Lys Val Pro Gly Ile Gln His Lys Val Leu
290 295 300
Glu Xaa Ile Ala Val Val Ser Pro Ala Val Glu Glu Thr Pro Val Val
305 310 315 320
Thr Lys Ile Glu Glu Gln Lys Val Thr Thr Val Pro Val Pro Ala Pro
325 330 335
Ser Cys Cys Tyr Arg Ala Gly Ser Arg Phe Lys Leu Cys Gln Arg Phe
340 345 350
Phe Ile Ile Ala Leu Tyr Pro
355
<210>458
<211>188
<212>PRT
<213>Chlamydia trachomatis
<400>458
Gly Gln Ala Ile Val Asp Glu Val Phe Gln Glu His Leu Leu Tyr Leu
1 5 10 15
Glu Ser Thr Ala Pro Gln Lys Asn Lys Glu Glu Glu Lys Ile Ser Ser
20 25 30
Leu Leu Gly Ala Ile Gln Gln Met Ala Asn Gly Cys Glu Val Gln Val
35 40 45
Phe Ser Gln Lys Gly Leu Val Ser Met Leu Leu Gly Gly Ala Gly Ser

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     50                  55                  60
Ile Asn Met Leu Leu Gln His Ser Pro Glu His Lys Asp His Pro Asp
 65                  70                  75                  80
Leu Pro Thr Asp Leu Leu Glu Arg Ile Ala Gln Met Met Arg Ser Leu
                 85                  90                  95
Ser Ile Gly Pro Thr Ser Ile Leu Ala Lys Pro Glu Pro His Cys Asn
            100                 105                 110
Cys Leu His Cys Gln Ile Gly Arg Ala Thr Val Glu Glu Glu Asp Ala
        115                 120                 125
Gly Val Ser Asp Glu Asp Leu Thr Xaa Arg Ser Trp Asp Ile Ser Gln
    130                 135                 140
Ser Gly Glu Lys Met Tyr Thr Val Thr Asp Pro Leu Asn Pro Glu Glu
145                 150                 155                 160
Gln Phe Asn Val Tyr Leu Xaa Thr Pro Ile Gly Cys Thr Cys Gly Gln
                165                 170                 175
Pro Tyr Cys Glu His Val Lys Ala Val Leu Tyr Thr
            180                 185
<210>459
<211>434
<212>PRT
<213>Chlamydia trachomatis
<400>459
Met Lys Lys Thr Ser Val Ile Asp Thr Ser Val Leu Ile Tyr Asp Pro
  1                 5                  10                  15
Lys Ala Leu Ser Ser Phe Ser Asn Thr Arg Ile Ile Ile Pro Phe Thr
             20                  25                  30
Val Ile Glu Glu Leu Glu Ser Cys Ala Lys Phe Arg Asp Glu Ser Gly
         35                  40                  45
Lys Asn Ala Ser Arg Ala Leu Ser Asn Ile Arg Leu Leu Leu Glu Gln
     50                  55                  60
Ser Glu Arg Pro Ser Ser Gly Gln Ile Leu Leu Lys Asn Gly Ser Glu
 65                  70                  75                  80
Leu Cys Ile Glu Val Ser Pro Leu Val Asn Leu Ser Asn His Glu Lys
                 85                  90                  95
Gln Lys Lys His Leu Thr Leu Glu Leu Leu Gln Ile Ile Ser Gln Arg
            100                 105                 110
Glu Pro Val Val Phe Val Thr Lys Ser Leu Gly Arg Arg Val His Ala
        115                 120                 125
Glu Ala Leu Gly Ile Glu Ala Lys Asp Tyr Glu Asn Lys Cys Val Ser
    130                 135                 140
Phe Arg Ser Leu Tyr Arg Gly His Arg Lys Leu Lys Val Ala Asn Ser
145                 150                 155                 160
Thr Ile Glu Tyr Phe Tyr Lys Asp Gly Ser Ile Ala Phe Pro Ser Asp
                165                 170                 175
Leu Ser Pro Leu Pro Ser Pro Asn Glu Tyr Phe Phe Leu Ser Gly Asp
            180                 185                 190
Ser Asp Asn Tyr Ser Ala Val Gly Arg Tyr Ser Ser Lys Asp Asn Lys
        195                 200                 205
Ile Leu Ser Leu Lys Pro Ala Pro Glu Lys Ile Trp Gly Val Lys Pro
    210                 215                 220
Leu Asn Ile Glu Gln Arg Cys Ala Leu Asp Leu Leu Leu Arg Asp Asp
225                 230                 235                 240
Ile Lys Leu Val Thr Leu Met Gly Gln Ala Gly Ser Gly Lys Thr Ile
                245                 250                 255
Leu Ala Leu Ala Ala Ala Met Tyr Gln Val Phe Glu Lys Pro Lys Tyr
            260                 265                 270
Asn Lys Leu Leu Val Ser Arg Pro Ile Ile Pro Met Gly Lys Asp Ile
        275                 280                 285
Gly Phe Leu Pro Gly Ile Lys Glu Ala Lys Leu Met His Trp Met Gln
    290                 295                 300
Pro Ile Tyr Asp Asn Met Glu Phe Leu Phe Asp Val Asn Asn Met Gly
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09/06/2004 16:05:02

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305                 310                 315                 320
Asp Phe Ser Glu Thr Leu His Ser Leu Met Glu Thr Lys Lys Leu Glu
                325                 330                 335
Met Glu Ala Leu Thr Tyr Ile Arg Gly Arg Ser Leu Pro Lys Val Phe
            340                 345                 350
Met Ile Ile Asp Glu Ala Gln Asn Leu Thr Pro His Glu Ile Lys Thr
        355                 360                 365
Ile Ile Ser Arg Ala Gly Lys Gly Thr Lys Ile Val Leu Thr Gly Asp
    370                 375                 380
Pro Thr Gln Ile Asp Ser Leu Tyr Phe Asp Glu Asn Ser Asn Gly Leu
385                 390                 395                 400
Thr Tyr Leu Val Gly Lys Phe His His Leu Pro Leu Tyr Gly His Met
                405                 410                 415
Phe Met Thr Arg Thr Glu Arg Ser Glu Leu Ala Ala Ala Ala Ala Thr
            420                 425                 430
Ile Leu

<210>460
<211>153
<212>PRT
<213>Chlamydia trachomatis
<400>460
Ile Phe Leu Tyr Val Leu Ser Ser Tyr Leu Val Leu Tyr Leu Ser Leu
  1               5                  10                  15
Leu Ile Ala Thr Ile Leu Gly Met Pro Gln Thr Leu Gly Val Cys Cys
            20                  25                  30
Arg Ile Glu Gly Ala Pro Gly Met Pro Ala Tyr Pro Leu Ile Ile Leu
        35                  40                  45
Leu Ser Val Val Thr Leu Ser Cys Cys Tyr Ala Glu Lys Arg Ala Val
    50                  55                  60
Ser Ile Gly Lys Tyr Gly Lys Ala Phe Val Leu Ser Cys Ile Asn Leu
65                  70                  75                  80
Leu Ser Pro Ile Leu Ala Tyr Asn Ile Leu Leu Phe Pro Asn Leu Leu
                85                  90                  95
Val Ser Thr Val Asp Asn Arg Tyr Thr Met Thr Val Phe Asn Ala Ala
            100                 105                 110
Ala Glu Thr Arg Thr Leu Gln His Leu Val Thr Ile Val Leu Ile Gly
        115                 120                 125
Leu Pro Phe Val Val Ala Tyr Ala Ile Tyr Ile Tyr Arg Val Phe Arg
    130                 135                 140
Gly Lys Thr Asp Phe Pro Ser Ile Tyr
145                 150
<210>461
<211>227
<212>PRT
<213>Chlamydia trachomatis
<400>461
Val Arg Ala Phe Phe Met Glu Phe Ser Leu Ala Thr Ile Leu Pro Val
  1               5                  10                  15
Val Trp Tyr Val Ile Leu Cys Ile Ala Val Phe Ala Tyr Ser Leu Gly
            20                  25                  30
Asp Gly Phe Asp Leu Gly Leu Ser Thr Ile Tyr Phe Leu Ser Lys Asp
        35                  40                  45
Glu Lys Glu Arg Arg Leu Leu Leu Asn Ser Ile Gly Pro Val Trp Asp
    50                  55                  60
Gly Asn Glu Val Trp Phe Val Ile Met Phe Ala Gly Leu Phe Ala Gly
65                  70                  75                  80
Phe Pro Thr Ala Tyr Gly Thr Leu Leu Ser Ile Phe Tyr Met Pro Ile
                85                  90                  95
Trp Xaa Met Val Met Leu Tyr Ile Phe Arg Gly Cys Ser Leu Glu Phe
            100                 105                 110
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Arg Ser Lys Ala Glu Ser Asn Arg Trp Lys Leu Phe Trp Asp Val Leu
        115                 120                 125
Phe Ser Ile Ser Gly Met Ser Ile Ser Phe Phe Leu Gly Thr Leu Ala
    130                 135                 140
Gly Asn Leu Leu Val Gly Phe Pro Ile Ala Pro Asp Thr Ser Tyr Ser
145                 150                 155                 160
Ser Leu Ser Trp Lys Leu Phe Phe Arg Pro Tyr Gln Val Leu Cys Gly
                165                 170                 175
Leu Phe Val Val Ala Ala Phe Ala Leu His Gly Ile Ser Phe Ala Leu
            180                 185                 190
Met Lys Thr Thr Glu Gly Leu His Glu Arg Leu Lys Asn Lys Phe Ser
        195                 200                 205
Phe Met Phe Cys Leu Val Thr Trp Phe Cys Ile Phe Pro Cys Ser Leu
    210                 215                 220
Arg Leu Phe
225
<210>462
<211>446
<212>PRT
<213>Chlamydia trachomatis
<400>462
Met Ser Ala Glu Ile Leu Ala Arg Val Gln Phe Ala Leu Phe Ile Gly
  1               5                  10                  15
Phe His Tyr Leu Phe Val Pro Ile Ser Leu Gly Leu Ser Ile Met Ile
            20                  25                  30
Val Leu Met Glu Gly Leu Tyr Leu Phe Thr Lys Lys Ser Ile Tyr Lys
        35                  40                  45
Gln Leu Thr Trp Phe Trp Ile Lys Ile Phe Thr Leu Thr Phe Val Val
    50                  55                  60
Gly Val Val Thr Gly Leu Met Gln Ile Phe Ser Phe Gly Ala Asn Trp
65                  70                  75                  80
Ser Arg Phe Ala Glu Tyr Thr Gly Asn Val Phe Gly Met Phe Leu Gly
                85                  90                  95
Ser Glu Gly Met Phe Ala Phe Phe Leu Glu Ser Gly Phe Leu Gly Val
            100                 105                 110
Leu Leu Phe Gly Arg Tyr Lys Val Ser Lys Lys Met His Phe Phe Ser
        115                 120                 125
Ala Cys Met Val Ala Leu Gly Ala His Met Ser Ala Phe Trp Ile Val
    130                 135                 140
Cys Ala Asn Ser Trp Met Gln Thr Pro Ser Gly Tyr Glu Met Val Met
145                 150                 155                 160
Arg Asn Gly Met Leu Val Pro Gln Met Thr Ser Phe Trp Ala Ala Val
                165                 170                 175
Leu Ser Pro Ser Ala Leu Gln Arg Phe Thr His Val Val Leu Gly Ala
            180                 185                 190
Trp Leu Ser Gly Ile Phe Leu Val Leu Ser Val Ser Ala His Tyr Leu
        195                 200                 205
Arg Lys Glu Arg His Lys Asp Phe Ala Asn Gln Gly Leu Lys Ile Ser
    210                 215                 220
Met Phe Cys Ala Phe Leu Val Leu Ala Leu Gln Leu Trp Ser Ala Asp
225                 230                 235                 240
Val Thr Ala Arg Gly Val Ala Lys His Gln Pro Ala Lys Leu Ala Ala
                245                 250                 255
Phe Glu Gly Val Phe Lys Thr Gln Glu His Thr Pro Ile Tyr Leu Leu
            260                 265                 270
Gly Ile Val Asp Met Lys Lys Glu Arg Val Ile Gly Ile Pro Ile Pro
        275                 280                 285
Ser Gly Leu Ser Leu Leu Val His Arg Asn Ala Lys Thr Pro Val Thr
    290                 295                 300
Gly Leu Asp Gln Phe Pro Lys Asp Glu Trp Pro Asn Val Ala Phe Val
305                 310                 315                 320
```

Phe Gln Thr Tyr His Leu Met Val Met Leu Trp Gly Val Met Val Leu
325 330 335
Leu Ala Leu Ile Ala Phe Ala Val Tyr Lys Lys Lys Ser Trp Ser Cys
340 345 350
Lys Lys Gly Ile Leu Trp Ile Leu Ser Leu Ser Val Leu Phe Pro Glu
355 360 365
Leu Cys Asn Glu Ile Gly Trp Ile Ser Thr Glu Val Gly Arg Gln Pro
370 375 380
Trp Val Val Tyr Gly Leu Leu Lys Thr Lys Asp Ala Thr Ser Pro Ile
385 390 395 400
Val Asn Ala Gly Gln Ile Trp Gln Ser Leu Ile Leu Phe Ser Ile Ile
405 410 415
Phe Ile Cys Leu Leu Ser Val Phe Val Ser Leu Leu Leu Lys Lys Ile
420 425 430
Gly Glu Gly Pro Asp Glu Gln Asp Leu Ile Glu Val Asp Leu
435 440 445

<210>463
<211>264
<212>PRT
<213>Chlamydia trachomatis
<400>463
Met Phe Val Gly Ile Thr Tyr Tyr Thr Thr Pro Leu Leu Glu Ile Ala
1 5 10 15
Leu Ile Trp Val Val Leu Asn Tyr Leu Leu Lys Phe Phe Trp Gly Thr
20 25 30
Gly Ala Met Asp Leu Val Phe Gly Leu Leu Ser Phe Leu Cys Leu Phe
35 40 45
Val Leu Ala Glu Lys Leu His Leu Pro Val Ile Arg Asn Leu Met Leu
50 55 60
His Val Val Asn Ile Ala Ala Ile Val Val Phe Ile Ile Phe Gln Pro
65 70 75 80
Glu Ile Arg Leu Ala Leu Ser Arg Ile Arg Leu Arg Arg Gly Lys Phe
85 90 95
Val Ile Asn Met Gln Asp Glu Phe Ile Asp His Leu Thr Ala Cys Ile
100 105 110
Tyr Arg Met Ala Glu Arg Gln Ile Gly Ala Leu Ile Val Leu Glu Asn
115 120 125
Glu Arg Leu Leu Asn Asp Leu Leu Asn Leu Ser Ala Val Lys Ile Asn
130 135 140
Ala Asp Phe Ser Glu Glu Leu Leu Glu Ala Ile Phe Glu Pro Ser Ser
145 150 155 160
His Leu His Asp Gly Ala Val Leu Met Arg Gly Glu Thr Ile Ser Tyr
165 170 175
Ala Arg Val Ile Leu Pro Leu Ala His Asp Thr Thr Gln Leu Ser Arg
180 185 190
Ser Met Gly Thr Arg His Arg Ala Ala Leu Gly Ala Ser Gln Arg Thr
195 200 205
Asp Ala Leu Val Ile Val Val Ser Glu Glu Thr Gly Ala Val Ser Leu
210 215 220
Ala Arg Asp Gly Ile Leu Thr Arg Gly Val Lys Met Asp Arg Phe Lys
225 230 235 240
Ala Ile Leu Arg Ser Ile Leu Thr Arg Asn Glu Arg Lys Thr Asn Pro
245 250 255
Ile Ile Ser Trp Met Arg Lys Lys
260

<210>464
<211>375
<212>PRT
<213>Chlamydia trachomatis
<400>464
Val Leu Pro Leu Leu Ser Gly Arg Leu Gln Ile Lys Ser Ile Thr Ile

```
  1               5                  10                  15
Thr Arg Thr Phe His Asn Ile Pro Val Arg Val Ile Asp Leu Ala Pro
            20                  25                  30
Glu Gln Thr Val Ile Gly Leu Gln Ala Asn Gly Leu Leu Lys Lys Lys
        35                  40                  45
Val Ala Met Met Ile Thr Gly Asn Lys Ser Val Val Glu Lys Leu Arg
    50                  55                  60
Pro Ser Asn Leu Glu Ile Val Ile Ser Ala Lys Gly Arg Thr Glu Ser
65                  70                  75                  80
Trp Ile Glu Thr Ile Asp Pro Tyr Asn Leu Val Cys Leu Asp Thr Asp
                85                  90                  95
Ile His Leu Arg Lys Asn Ile Lys Ser Val Thr Ser Glu Asp Ile Phe
            100                 105                 110
Ile Arg Leu Thr Gln Phe Val Thr Glu Asp Val Ser Val Thr Ile Thr
        115                 120                 125
Lys Pro Ile Gly Arg Ala Pro Lys Gly Tyr Glu Tyr Leu Asp Thr Trp
    130                 135                 140
Pro Lys Tyr Leu Val Gln Lys Val Ser Gly Pro Lys Glu Tyr Val Ser
145                 150                 155                 160
Ser Leu Lys Asp His Gly Leu Glu Leu Thr Phe Asn Leu Asn Lys Val
                165                 170                 175
Ser Phe Glu Glu Leu Asp Arg Asn Arg Leu Ala Gln Gly Asn Leu Asp
            180                 185                 190
Glu Val Val Tyr Leu Val Pro Glu Asp Trp Lys Lys Val Tyr Ile Pro
        195                 200                 205
Phe Asp Asn Ser Tyr Met Glu Leu Asn Asp Pro Gln Ala Asp Phe Leu
    210                 215                 220
Arg Leu Leu Phe Leu Lys Gln Glu Phe Ile Pro Leu Asn Ile Asn Leu
225                 230                 235                 240
Pro Val Leu Leu Phe Phe Pro Val Glu Asn Ser Gln Leu Val Asn Pro
                245                 250                 255
Gln Asn Tyr Tyr Leu Glu Glu Asn Ala Pro Leu Val Leu Asn His Gly
            260                 265                 270
Ile Tyr Gln Met Asp Leu Pro Leu Tyr Val Lys Asp Val Ser His Leu
        275                 280                 285
Phe Leu Asp Val Val Lys Asn Asn Ile Ala Leu Thr Ile Ile Met Glu
    290                 295                 300
Pro Pro Val Lys Ser Gln Arg Glu His Phe Ile His Trp Ala Val Glu
305                 310                 315                 320
Phe Leu Asp Glu Lys Thr Leu Glu Asn Thr Phe Val Gln Ala Val Met
                325                 330                 335
Ala Gln Glu Gln Lys Thr Asn Lys His Met Ile Leu Asp Glu Ala Gly
            340                 345                 350
Ile Arg His Arg Phe Arg Glu Tyr Leu Arg Lys Leu Thr Leu Phe Asp
        355                 360                 365
Gln Asn Gly Glu Pro Leu Pro
    370                 375
<210>465
<211>455
<212>PRT
<213>Chlamydia trachomatis
<400>465
Met Leu Phe Lys Arg Leu Arg Thr Gly Gly Lys Ile Leu Val Asp His
  1               5                  10                  15
Leu Val Tyr Gly Leu Gly Leu Gly Val Leu Thr Ile Leu Arg Leu Leu
            20                  25                  30
Pro Arg Ser Ser Leu Arg Leu Phe Ser Lys Gly Leu Gly Thr Ala Leu
        35                  40                  45
Phe Tyr Phe Ile Ser Asp Phe Arg Lys Thr Ala Leu Thr Asn Leu Ala
    50                  55                  60
Leu Ala Phe Pro Glu Lys Ser Phe Ala Glu Arg Tyr Gln Ile Ala Arg
```

```
 65                  70                  75                  80
Gln Ser Val Gln Gln Met Ile Ile Thr Phe Val Glu Leu Ala Thr Val
                 85                  90                  95
Asp Lys Phe Ala Lys His Ile Asp Glu Met Ile Ala Ile Ala Thr Ser
            100                 105                 110
Glu Asp Ala Pro Glu Gly Phe Phe Pro Glu Glu Val Ser Ser Gln Gln
        115                 120                 125
Glu Leu Asp His Phe Phe Ser Arg Leu Asp Arg Gln Glu Gly Ala Ile
    130                 135                 140
Leu Phe Cys Gly His Gln Ala Asn Trp Glu Leu Pro Phe Leu Tyr Ile
145                 150                 155                 160
Thr Lys Arg Tyr Pro Gly Leu Ala Phe Ala Lys Pro Val Lys Asn Arg
                165                 170                 175
Arg Leu Asn Gln Lys Ile Ile Ser Leu Arg Glu Ser Phe Gln Gly Lys
            180                 185                 190
Ile Val Pro Pro Gln Asn Ala Ile Asn Gln Ala Leu Arg Ala Leu His
        195                 200                 205
Arg Gly Glu Val Val Gly Ile Val Gly Asp Gln Val Leu Leu Ser Ser
    210                 215                 220
Glu Tyr Ser Tyr Pro Leu Phe Gly Ser Gln Ala Phe Thr Thr Thr Ser
225                 230                 235                 240
Pro Ala Leu Leu Ala Tyr Lys Thr Lys Lys Thr Val Ile Ala Val Ala
                245                 250                 255
Ile Tyr Arg Lys Pro Asn Gly Asn Tyr Leu Val Val Pro Ser Lys Ala
            260                 265                 270
Phe His Ala Asn Thr Glu Leu Ser Ile Arg Glu Ser Thr Glu Gln Leu
        275                 280                 285
Met Asp Arg Leu Met Arg Phe Leu Glu Lys Gly Ile Thr Cys Lys Pro
    290                 295                 300
Glu Gln Trp Leu Trp Leu His Lys Arg Trp Lys Arg Lys Leu Arg His
305                 310                 315                 320
Lys Phe Lys Arg Arg Tyr Ala Phe Ser His Ile Leu Ile Ile Val Lys
                325                 330                 335
Gly Thr Ser Leu Gln Ala Leu Gln Arg Phe Leu Ile Glu Phe Gly Glu
            340                 345                 350
Phe Tyr Ala Asp Ala Ser Leu Ser Leu Ala Ile Ile Gly Ala Thr Asp
        355                 360                 365
Thr Val Leu Ala Asn Ser Phe Ala Pro Tyr Ser Leu Gln Phe Phe Ser
    370                 375                 380
Ser Glu Glu Glu Leu Leu Ala Ala Pro Asn Phe Phe Pro Ala Ile Val
385                 390                 395                 400
Asp Leu Phe Gly Leu Ser Arg Lys Thr Arg Leu His Tyr Lys Arg Thr
                405                 410                 415
Gly Ser Arg Lys Ile Phe Thr Arg Asn Glu Leu Lys Asp Ser Leu Leu
            420                 425                 430
Gln Lys Gln Ser Leu Ile Gln Ser Phe His Lys Leu Leu Arg Arg Val
        435                 440                 445
Asp Thr Arg Ser Arg Lys Gly
    450                 455
<210>466
<211>143
<212>PRT
<213>Chlamydia trachomatis
<400>466
Met Ser Glu His Val His Lys Glu Leu Leu His Leu Gly Glu Val Phe
  1               5                  10                  15
Arg Ser Gln Arg Glu Glu Arg Ala Leu Ser Leu Lys Asp Val Glu Ala
             20                  25                  30
Ala Thr Ser Ile Arg Leu Ser Ala Leu Glu Ala Ile Glu Ala Gly His
         35                  40                  45
Leu Gly Lys Leu Ile Ser Pro Val Tyr Ala Gln Gly Phe Met Lys Lys
```

```
     50                  55                  60
Tyr Ala Ala Phe Leu Asp Met Asp Gly Asp Arg Leu Leu Lys Glu His
 65                  70                  75                  80
Pro Tyr Val Leu Lys Ile Phe Gln Glu Phe Ser Asp Gln Asn Met Asp
                85                  90                  95
Met Leu Leu Asp Leu Glu Ser Met Gly Gly Arg Asn Ser Pro Glu Lys
            100                 105                 110
Ala Ile Arg Ser Trp Leu Asn Leu Gly Trp Ala Gly Val Phe Val Val
        115                 120                 125
Gly Ala Ala Cys Ile Trp Trp Leu Gly Asn Leu Phe Asn Leu Phe
    130                 135                 140
<210>467
<211>245
<212>PRT
<213>Chlamydia trachomatis
<400>467
Pro Leu Ser Phe Arg Asn Cys Leu Leu Leu Tyr Phe Leu Tyr Phe Glu
  1               5                  10                  15
Asn Asn Leu Glu Lys Lys Gly Phe Thr Ile Ser Ile Pro Pro His Thr
            20                  25                  30
Val Phe Gln Gly Arg Ser Pro Thr Val Ser Cys Thr Val Tyr Gln Ser
        35                  40                  45
Gly Lys Ile Val Val Gln Gly Lys Gly Thr Gln Glu Phe Val Glu Phe
    50                  55                  60
Phe Leu Glu Pro Glu Ile Leu Gln Thr Phe Ser Ser Gln Asn Val Gln
 65                  70                  75                  80
Gln Asp Leu Arg Ser Arg Ile Gly Val Asp Glu Ser Gly Lys Gly Asp
                85                  90                  95
Phe Phe Gly Pro Leu Cys Thr Ala Gly Val Tyr Ala Ser Ser Pro Gln
            100                 105                 110
Ala Ile Glu Ala Leu Tyr Lys Thr Ser Ile Cys Asp Ser Lys Leu Ile
        115                 120                 125
Pro Asp Ala Lys Ile Leu Ser Leu Ala Gln Asn Ile Arg Ser Leu Cys
    130                 135                 140
Ala Cys Lys Val Ile Thr Leu Phe Pro Glu Lys Tyr Asn Ala Leu Tyr
145                 150                 155                 160
Ala Asn Phe Gln Asn Leu Asn Ser Leu Leu Ala Trp Thr His Ala Thr
                165                 170                 175
Ile Ile Asp Asn Leu Ala Pro His Pro Ala Gly Ala Val Phe Ala Ile
            180                 185                 190
Ser Asp Gln Phe Ala Ser Ser Glu Arg Val Leu Leu Gln Ala Val Arg
        195                 200                 205
Lys Lys Arg Ser Asp Ile Glu Leu Ile Gln Arg His Arg Ala Glu Gln
    210                 215                 220
Asp Val Val Val Ala Ala Ala Ser Ile Leu Ala Arg Glu Val Phe Ser
225                 230                 235                 240
Leu Pro Tyr Thr Pro
                245
<210>468
<211>288
<212>PRT
<213>Chlamydia trachomatis
<400>468
Trp Ser Gly Met Leu Lys Val Leu Phe His Thr Met Thr Leu Phe Gly
  1               5                  10                  15
His Leu Leu Ser Thr Pro Ile Tyr Ile Val Gly Asp Ala Cys Gly Lys
            20                  25                  30
Asp Arg Asp Glu Tyr Lys Asn Pro Pro Leu Arg Ala Phe Ser Phe Glu
        35                  40                  45
Ser Gln Phe Leu Gln Ile Glu Asn Ala Lys Phe Lys Thr Leu Pro Asp
    50                  55                  60
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Gln Ser Leu Gly Tyr Arg Gln Ala Asp Thr Ser Leu Phe Ala Thr Ile
 65                  70                  75                  80
Pro Val Thr Glu Met Ser Gly Phe Leu Leu Ser Ser Arg Tyr Leu Gly
                85                  90                  95
Ala Glu Val Ser Trp Lys Ser Ser Lys Glu Leu Gln Asp Thr Asp Pro
            100                 105                 110
Gln Ala Val Gly Tyr Phe Ala Phe Gln Asp Lys Ser Phe Tyr Gln Tyr
        115                 120                 125
Ile Thr Leu Ser Val Gly Ala Tyr Thr Leu Ala Leu Thr Asn Trp Gln
    130                 135                 140
Trp Ser Val Leu Phe Ser Gly Met Val Asp Pro Glu Asn Ile Glu Ile
145                 150                 155                 160
Gly Ser Gly Leu Tyr Gln Val Val Leu Ser Ser Lys Tyr His Ala Ser
                165                 170                 175
Lys Ser Leu Ser Val Ile Met Gly Val Ile Asn Glu Val Gly Leu His
            180                 185                 190
Asp Lys Gln Ala Trp Pro Leu Leu Gly Phe Ser Tyr Lys Pro Glu Asp
        195                 200                 205
Arg Leu Thr Leu Asn Cys Ile Tyr Pro Val Asn Phe Ser Ala Glu Tyr
    210                 215                 220
Gln Cys Thr Pro Val Cys Asp Leu Gly Val Ala Tyr Arg Leu Thr Arg
225                 230                 235                 240
Leu Arg Lys Lys Phe Pro Lys Asn Ser Leu Ala Thr Ser Glu Gly Ile
                245                 250                 255
Phe Glu Tyr Ser Gly Arg Glu Ile Glu Gly Asn Ile Lys Leu Ile Phe
            260                 265                 270
Trp Pro Gly Gln Asn Leu Lys Met Phe Gly Gly Tyr Phe Arg Arg Glu
        275                 280                 285
<210>469
<211>194
<212>PRT
<213>Chlamydia trachomatis
<400>469
His Leu Val Gly Lys Met Pro Ser Thr Val Ala Pro Ile Lys Gly Gln
  1                 5                  10                  15
Asp His Phe Leu Asn Leu Val Phe Pro Glu Arg Val Ala Ala Ala Tyr
             20                  25                  30
Met Ser Pro Leu Ala Gln Lys Tyr Pro Lys Ala Ala Leu Ser Ile Ala
         35                  40                  45
Ser Leu Ala Gly Phe Leu Leu Gly Ile Leu Lys Leu Ile Thr Phe Pro
     50                  55                  60
Val Leu Cys Ala Ala Gly Leu Phe Val Phe Pro Ile Arg Gly Leu Ile
 65                  70                  75                  80
Ser Cys Leu Phe His Lys Ser Phe Gln Gly Cys Ser Gly Tyr Val Leu
                85                  90                  95
Ala Thr Phe Leu Ser Leu Phe Ser Leu Ala Leu Thr Ile Val Gly Ile
            100                 105                 110
Val Ser Cys Ile Thr Trp Ala Pro Gly Phe Ile Phe Pro Met Ile Ser
        115                 120                 125
Val Ser Ile Ala Phe Ala Thr Val Glu Thr Cys Phe Gln Ile Tyr Thr
    130                 135                 140
His Leu Phe Pro Ala Leu Glu His Lys Pro Ser Ser Ser Leu Lys Ile
145                 150                 155                 160
Glu Ile Ala Ala Ala Lys Leu Pro Arg Ser Ser Ser Ala Pro Asp Leu
                165                 170                 175
Asn Cys Pro Ser Leu Pro Thr Gln Ser Ala Ser Pro Ser Gln Arg Phe
            180                 185                 190
Ser Ala

<210>470
<211>376
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<212>PRT
<213>Chlamydia trachomatis
<400>470

```
Ile Leu Val Leu Ser Val Phe Cys Phe Trp Asp Asn Phe Met Thr Pro
  1               5                  10                  15
Val Thr Pro Val Pro Pro Gln Ser Pro Gln Gln Val Lys Gly Leu Leu
            20                  25                  30
Ser Arg Phe Leu Thr Ala Pro Asp Arg His Pro Lys Leu Arg Tyr Val
        35                  40                  45
Tyr Asp Ile Ala Leu Ile Ala Ile Ser Ile Leu Cys Ile Val Ser Ile
    50                  55                  60
Ile Leu Trp Thr Gln Gly Ser Gly Leu Ala Leu Phe Ala Ile Ala Pro
65                  70                  75                  80
Ala Leu Ala Ile Gly Ala Leu Gly Val Thr Leu Leu Val Ser Asp Leu
                85                  90                  95
Ala Glu Ser Gln Lys Ser Lys Glu Ile Ala Asp Thr Val Ala Ala Val
            100                 105                 110
Ser Leu Pro Phe Ile Leu Thr Gly Thr Ala Ala Gly Leu Met Phe Ser
        115                 120                 125
Ala Ile Ala Val Gly Lys Gly Ala Val Ile Leu Ala Asn Pro Leu Phe
    130                 135                 140
Leu Met Gly Ser Met Thr Leu Gly Phe Ala Leu Met Ser Leu His Arg
145                 150                 155                 160
Val Thr Tyr Gln Tyr Leu Ser Asn Arg Glu Gln Trp Lys Gln Gln Lys
                165                 170                 175
Lys Leu Glu Gln Val Glu Leu Ala Ala Trp Glu Ser His Leu Pro Lys
            180                 185                 190
Glu Ser Lys Ser Ser Ala Leu Glu Glu Val Arg Tyr Ser Pro Arg Leu
        195                 200                 205
Met Lys Arg Gly Lys Thr Trp Arg Lys Arg Ala Ile Arg Arg Lys Asn
    210                 215                 220
Tyr Ile Pro Ile Pro Leu Val Asp Lys Thr Leu Gln Thr Met Gln Pro
225                 230                 235                 240
Asp Ala Leu Phe Ser Ser Thr Thr Thr His Ser Thr Asp Ser Glu Gln
                245                 250                 255
Ile Leu Thr Ser Val Ser Pro Gln Ser Ser Asp Thr Glu Ser Ser Ser
            260                 265                 270
Ser Ser Ser Phe His Thr Pro Pro Asn Ser Asp Lys Glu Leu Ser Asp
        275                 280                 285
Ser Asn Ser Ser Asp Ser Ser Ser Ser Ser Glu Tyr Met Asp Ala Leu
    290                 295                 300
Glu Thr Val Ala Ala Gly Asp Val Ser Gly Ile Thr Pro Pro Ser Lys
305                 310                 315                 320
Pro Ser Ser Ser Pro Lys Thr Thr Arg Arg Val Val Lys Leu Ser Arg
                325                 330                 335
Ser Glu Arg Asn Ala Gln His His Arg Asn Lys Asp Gln Glu Gln Arg
            340                 345                 350
Gln Asp Ser Ser Glu Ser Ser Asp Glu Glu Ser Ser Ser Asp Ser Ser
        355                 360                 365
Gln Lys Lys Lys Pro Ser Arg Lys
    370                 375
```

<210>471
<211>436
<212>PRT
<213>Chlamydia trachomatis
<400>471

```
Asn Asn Met Gly Ile Ala His Thr Glu Trp Glu Ser Val Ile Gly Leu
  1               5                  10                  15
Glu Val His Val Glu Leu Asn Thr Glu Ser Lys Leu Phe Ser Pro Ala
            20                  25                  30
Arg Asn His Phe Gly Asp Glu Pro Asn Thr Asn Ile Ser Pro Val Cys
```

```
          35                  40                  45
Thr Gly Met Pro Gly Ser Leu Pro Val Leu Asn Lys Asp Ala Val Arg
      50                  55                  60
Lys Ala Val Leu Phe Gly Cys Ala Val Glu Gly Asp Val Ala Leu Phe
 65                  70                  75                  80
Ser Arg Phe Asp Arg Lys Ser Tyr Phe Tyr Pro Asp Ser Pro Arg Asn
                 85                  90                  95
Phe Gln Ile Thr Gln Tyr Glu His Pro Ile Val Arg Gly Gly Cys Ile
            100                 105                 110
Arg Ala Val Val Glu Gly Glu Glu Lys Thr Phe Xaa Leu Ala Gln Thr
        115                 120                 125
His Leu Glu Asp Asp Ala Gly Met Leu Lys His Phe Gly Asp Phe Ala
    130                 135                 140
Gly Val Asp Tyr Asn Arg Ala Gly Val Pro Leu Ile Glu Ile Val Ser
145                 150                 155                 160
Lys Pro Cys Met Phe Ser Ala Glu Asp Ala Val Ala Tyr Ala Asn Ala
                165                 170                 175
Leu Val Ser Ile Leu Gly Tyr Ile Gly Ile Ser Asp Cys Asn Met Glu
            180                 185                 190
Glu Gly Ser Ile Arg Phe Asp Val Asn Ile Ser Val Arg Pro Arg Gly
        195                 200                 205
Ser Arg Glu Leu Arg Asn Lys Val Glu Ile Lys Asn Met Asn Ser Phe
    210                 215                 220
Thr Phe Met Ala Gln Ala Leu Glu Ala Glu Lys Arg Arg Gln Ile Glu
225                 230                 235                 240
Glu Tyr Leu Ser His Pro Asn Glu Asp Pro Lys Lys Val Val Pro Ala
                245                 250                 255
Ala Thr Tyr Arg Trp Asp Pro Glu Lys Lys Lys Thr Val Leu Met Arg
            260                 265                 270
Leu Lys Glu Arg Ala Glu Asp Tyr Met Tyr Phe Val Glu Pro Asp Leu
        275                 280                 285
Pro Val Leu Gln Ile Thr Glu Thr Tyr Ile Asp Glu Val Arg Gln Thr
    290                 295                 300
Leu Pro Glu Leu Pro His Ser Lys Tyr Met Arg Tyr Ile Thr Asp Phe
305                 310                 315                 320
Asp Ile Ala Glu Asp Leu Ala Met Ile Leu Val Gly Asp Arg His Thr
                325                 330                 335
Ala His Phe Phe Glu Thr Ala Thr Met Ser Cys Lys Asn Tyr Arg Ala
            340                 345                 350
Leu Ser Asn Trp Ile Thr Val Glu Phe Ala Gly Arg Cys Lys Ala Lys
        355                 360                 365
Gly Lys Thr Leu Leu Phe Thr Gly Ile Leu Pro Glu Trp Val Ala Gln
    370                 375                 380
Leu Val Asn Phe Ile Val Arg Gly Val Ile Thr Gly Lys Ile Ala Lys
385                 390                 395                 400
Glu Ile Ala Asp Arg Met Val Ser Ser Phe Gly Glu Ser Pro Glu Asp
                405                 410                 415
Ile Leu Arg Arg His Pro Ser Leu Leu Pro Met Thr Asp Asp His Ala
            420                 425                 430
Leu Arg Tyr Arg
        435
<210>472
<211>491
<212>PRT
<213>Chlamydia trachomatis
<400>472
Met Tyr Arg Lys Ser Ala Leu Glu Leu Arg Asp Ala Val Val Asn Arg
  1               5                  10                  15
Glu Leu Ser Val Thr Ala Ile Thr Glu Tyr Phe Tyr His Arg Ile Glu
            20                  25                  30
Ser His Asp Glu Gln Ile Gly Ala Phe Leu Ser Leu Cys Lys Glu Arg
```

```
          35                  40                  45
Ala Leu Leu Arg Ala Ser Arg Ile Asp Asp Lys Leu Ala Lys Gly Asp
     50                  55                  60
Pro Ile Gly Leu Leu Ala Gly Ile Pro Ile Gly Val Lys Asp Asn Ile
 65                  70                  75                  80
His Ile Thr Gly Val Lys Thr Thr Cys Ala Ser Lys Met Leu Glu Asn
                 85                  90                  95
Phe Val Ala Pro Phe Asp Ser Thr Val Val Arg Arg Ile Glu Met Glu
            100                 105                 110
Asp Gly Ile Leu Leu Gly Lys Leu Asn Met Asp Glu Phe Ala Met Gly
        115                 120                 125
Ser Thr Thr Arg Tyr Ser Ala Phe His Pro Thr Asn Asn Pro Trp Asp
    130                 135                 140
Leu Glu Arg Val Pro Gly Gly Ser Ser Gly Gly Ser Ala Ala Ala Val
145                 150                 155                 160
Ser Ala Arg Phe Cys Pro Ile Ala Leu Gly Ser Asp Thr Gly Gly Ser
                165                 170                 175
Ile Arg Gln Pro Ala Ala Phe Cys Gly Val Val Gly Phe Lys Pro Ser
            180                 185                 190
Tyr Gly Ala Val Ser Arg Tyr Gly Leu Val Ala Phe Gly Ser Ser Leu
        195                 200                 205
Asp Gln Ile Gly Pro Leu Thr Thr Val Val Glu Asp Val Ala Leu Ala
    210                 215                 220
Met Asp Ala Phe Ala Gly Arg Asp Pro Lys Asp Ser Thr Thr Arg Asp
225                 230                 235                 240
Phe Phe Lys Gly Thr Phe Ser Gln Ala Leu Ser Leu Glu Val Pro Lys
                245                 250                 255
Leu Ile Gly Val Pro Arg Gly Phe Leu Asp Gly Leu Gln Glu Asp Cys
            260                 265                 270
Lys Glu Asn Phe Phe Glu Ala Leu Ala Val Met Glu Arg Glu Gly Ser
        275                 280                 285
Arg Ile Ile Asp Val Asp Leu Ser Val Leu Lys His Ala Val Pro Val
    290                 295                 300
Tyr Tyr Ile Val Ala Ser Ala Glu Ala Ala Thr Asn Leu Ala Arg Phe
305                 310                 315                 320
Asp Gly Val Arg Tyr Gly His Arg Cys Ala Gln Ala Asp Asn Met His
                325                 330                 335
Glu Met Tyr Ala Arg Ser Arg Lys Glu Gly Phe Gly Lys Glu Val Thr
            340                 345                 350
Arg Arg Ile Leu Leu Gly Asn Tyr Val Leu Ser Ala Glu Arg Gln Asn
        355                 360                 365
Ile Phe Tyr Lys Lys Gly Met Ala Val Arg Ala Arg Leu Ile Asp Ala
    370                 375                 380
Phe Gln Ala Ala Phe Glu Arg Cys Asp Val Ile Ala Met Pro Val Cys
385                 390                 395                 400
Ala Thr Pro Ala Ile Arg Asp Gln Asp Val Leu Asp Pro Val Ser Leu
                405                 410                 415
Tyr Leu Gln Asp Ile Tyr Thr Val Ala Val Asn Leu Ala Tyr Leu Pro
            420                 425                 430
Ala Ile Ser Val Pro Ser Gly Leu Ser Lys Glu Gly Leu Pro Leu Gly
        435                 440                 445
Val Gln Phe Ile Gly Glu Arg Gly Ser Asp Gln Gln Ile Cys Gln Val
    450                 455                 460
Gly Tyr Ser Phe Gln Glu His Ser Gln Ile Lys Gln Leu Tyr Pro Lys
465                 470                 475                 480
Ala Val Asn Gly Leu Phe Asp Gly Gly Ile Glu
                485                 490
```

<210>473
<211>125
<212>PRT
<213>Chlamydia trachomatis

<400>473
Gly Phe Phe Cys Phe Lys Lys Phe Gly Gly Phe Phe Phe Phe Leu Gly
1 5 10 15
Ser Cys Leu Pro Phe Phe Gly Leu Glu Val Ala Gly Phe Phe Phe Asn
20 25 30
Gln Gly Gly Ile Leu Phe Phe Ala Lys Asn Ala Ala Leu Glu Leu Glu
35 40 45
Asp Ala His Val Glu Glu Phe Val Thr Ser Met Asn Asp Val Ile Ala
50 55 60
Leu Met Gln Glu Val Ile Ala Ile Asp Ile Ser Asp Ile Ile Leu Glu
65 70 75 80
Ala Thr Val His His Phe Val Gly Pro Glu Asp Leu Arg Glu Asp Met
85 90 95
Val Thr Ser Asp Phe Thr Gln Glu Glu Phe Leu Ser Asn Val Pro Val
100 105 110
Ser Leu Gly Gly Leu Val Lys Val Pro Thr Val Ile Lys
115 120 125
<210>474
<211>109
<212>PRT
<213>Chlamydia trachomatis
<400>474
Ile Val Lys Lys Ile Thr Lys Ser Glu Leu Ser Ile His Leu Arg Trp
1 5 10 15
Arg Asp Val Met Leu Cys Lys Val Cys Arg Gly Leu Ser Ser Leu Ile
20 25 30
Val Val Leu Gly Ala Ile Asn Thr Gly Ile Leu Gly Val Thr Gly Tyr
35 40 45
Lys Val Asn Leu Leu Thr His Leu Leu Gly Glu Gly Thr Met Trp Thr
50 55 60
Gln Ala Ala Tyr Val Val Thr Gly Ile Ala Gly Val Met Val Cys Leu
65 70 75 80
Asn Phe Leu Lys Cys Cys Phe Lys Lys Arg His Glu Asp Cys Cys Ser
85 90 95
Ser Lys Gly Gly Cys His His His His Met Asp Arg Glu
100 105
<210>475
<211>467
<212>PRT
<213>Chlamydia trachomatis
<400>475
Ser Tyr Cys Ser Trp Cys Lys Phe Trp Glu Glu Tyr Ser Pro Ser Ala
1 5 10 15
Ala Arg Gly Leu Arg Leu Met Phe Thr Asp Phe Trp Arg Thr Arg Val
20 25 30
Leu Arg Gln Thr Ser Pro Met Asp Val Val Phe Gly Asn Leu Asp Val
35 40 45
Asn Glu Ala Arg Leu Met Ala Ala Tyr Thr Ser Glu Cys Ala Asp Tyr
50 55 60
Leu Glu Ala His Asp Leu Ala Gly Pro Asp Gly Val Ala Ala Ala Arg
65 70 75 80
Glu Ile Ala Gln Arg Trp Asp Lys Arg Val Arg Asp Leu Gln Asp Lys
85 90 95
Gly Ala Ala Gln Lys Leu Leu Asn Asp Pro Leu Gly Arg Arg Thr Pro
100 105 110
Asn Tyr Gln Ser Lys Asn Pro Gly Glu Tyr Thr Val Gly Asn Ser Met
115 120 125
Phe Tyr Asp Gly Pro Gln Val Ala Asn Leu Gln Asn Val Asp Thr Gly
130 135 140
Phe Trp Leu Asp Met Ser Asn Phe Ser Asp Val Val Leu Ser Arg Glu
145 150 155 160

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Ile Gln Thr Gly Leu Arg Ala Arg Ala Thr Leu Glu Glu Ser Met Pro
                165                 170                 175
Met Leu Glu Asn Leu Glu Glu Arg Phe Arg Arg Leu Gln Glu Thr Cys
            180                 185                 190
Asp Ala Ala Arg Thr Glu Ile Glu Glu Ser Gly Trp Thr Arg Glu Ser
        195                 200                 205
Ala Ser Arg Met Gly Gly Asp Glu Thr Gln Gly Pro Ser Arg Ala Gln
    210                 215                 220
Gln Ala Phe Gln Ser Phe Val Asn Glu Cys Asn Ser Ile Glu Phe Ser
225                 230                 235                 240
Phe Gly Ser Phe Gly Glu His Val Arg Val Leu Cys Ala Arg Val Ser
                245                 250                 255
Arg Gly Leu Val Ala Ala Gly Glu Ala Ile Arg Arg Cys Phe Ser Cys
            260                 265                 270
Cys Lys Gly Ser Thr His Arg Tyr Ala Pro Arg Asp Asp Leu Ser Pro
        275                 280                 285
Glu Gly Ala Ser Leu Ala Glu Thr Leu Ala Arg Phe Ala Asp Asp Met
    290                 295                 300
Gly Ile Glu Gln Gly Ala Asp Gly Thr Tyr Asp Ile Pro Trp Val Asp
305                 310                 315                 320
Asp Trp Arg Arg Gly Val Pro Ser Ile Glu Gly Glu Gly Ser Ala Ser
                325                 330                 335
Ile Tyr Glu Ile Met Met Pro Ile Tyr Glu Val Met Asn Met Asp Leu
            340                 345                 350
Glu Thr Arg Arg Ser Phe Ala Val Gln Gln Gly His Tyr Gln Asp Pro
        355                 360                 365
Arg Ala Ser Asp Tyr Asp Leu Pro Arg Ala Ser Asp Tyr Asp Leu Pro
    370                 375                 380
Arg Ser Pro Tyr Pro Thr Pro Pro Leu Pro Ser Arg Tyr Gln Leu Gln
385                 390                 395                 400
Asn Met Asp Val Glu Ala Gly Phe Arg Glu Ala Val Tyr Ala Ser Phe
                405                 410                 415
Val Ala Gly Met Tyr Asn Tyr Val Val Thr Gln Pro Gln Glu Arg Ile
            420                 425                 430
Pro Asn Ser Gln Gln Val Glu Gly Ile Leu Arg Asp Met Leu Thr Asn
        435                 440                 445
Gly Ser Gln Thr Phe Ser Asn Leu Met Gln Arg Trp Asp Arg Glu Val
    450                 455                 460
Asp Arg Glu
465
<210>476
<211>173
<212>PRT
<213>Chlamydia trachomatis
<400>476
Val Phe Ile Leu Val Leu Gly Trp Phe Val Met Ser Ile Gly Gly Val
  1               5                  10                  15
Gly Gly Asn Gly Asn Ser Arg Ile Pro Ser His Asn Gly Asp Gly Ser
            20                  25                  30
Asn Arg Arg Ser Gln Asn Thr Lys Gly Asn Asn Lys Val Glu Asp Arg
        35                  40                  45
Val His Ser Leu Tyr Ser Ser Leu Ser Asn Glu Asn Arg Glu Ser Pro
    50                  55                  60
Tyr Pro Val Val Asp Val Ser Ser Met Ile Glu Ser Thr Pro Thr Ser
65                  70                  75                  80
Gly Glu Thr Pro Arg Ala Ser Arg Gly Val Phe Ser Arg Phe Gln Arg
                85                  90                  95
Gly Leu Gly Arg Val Ala Asp Lys Val Arg Arg Ala Val Gln Cys Ala
            100                 105                 110
Trp Gly Ser Val Ser Thr Arg Arg Ser Ser Ala Thr Arg Ala Val Glu
        115                 120                 125
```

```
Ser Gly Ser Ser Ser Arg Thr Ala Arg Gly Ala Ser Ser Gly Arg Ser
    130                 135                 140
Ile Leu Leu Gln Gln Leu Glu Gly Cys Val Leu Cys Ser Gln Ile Ser
145                 150                 155                 160
Gly Glu Leu Gly Phe Tyr Ala Arg Pro Leu Leu Trp Met
                165                 170
<210>477
<211>438
<212>PRT
<213>Chlamydia trachomatis
<400>477
Val Lys Pro Pro Ser Ser Leu Lys Ile Leu Ile Met Ser Ser Val His
  1               5                  10                  15
Phe Leu Arg Thr Val Pro Trp Arg Ala Ser Phe Leu Leu Phe Val Leu
            20                  25                  30
Met His His Lys Thr Ile Pro Leu Tyr Val Leu Gly Asn Ser Tyr Cys
        35                  40                  45
Trp Phe Val Ser Lys Leu His Ile Thr Asp Pro Lys Glu Ala Leu Phe
    50                  55                  60
Lys Glu Lys Gly Asp Leu Ser Ile Gln Asn Phe Arg Phe Leu Ser Phe
65                  70                  75                  80
Thr Asp Cys Ser Ser Lys Glu Ser Ser Pro Ser Ile Ile His Gln Lys
                85                  90                  95
Asn Gly Gln Leu Ser Leu Arg Asn Asn Gly Ser Met Ser Phe Cys Arg
            100                 105                 110
Asn His Ala Glu Gly Ser Gly Gly Ala Ile Ser Ala Asp Ala Phe Ser
        115                 120                 125
Leu Gln His Asn Tyr Leu Phe Thr Ala Phe Glu Glu Asn Ser Ser Lys
    130                 135                 140
Gly Asn Gly Gly Ala Ile Gln Ala Gln Thr Phe Ser Leu Ser Arg Asn
145                 150                 155                 160
Val Ser Pro Ile Ser Phe Ala Arg Asn Arg Ala Asp Leu Asn Gly Gly
                165                 170                 175
Ala Ile Cys Cys Ser Asn Leu Ile Cys Ser Gly Asn Val Asn Pro Leu
            180                 185                 190
Phe Phe Thr Gly Asn Ser Ala Thr Asn Gly Gly Ala Ile Cys Cys Ile
        195                 200                 205
Ser Asp Leu Asn Thr Ser Glu Lys Gly Ser Leu Ser Leu Ala Cys Asn
    210                 215                 220
Gln Glu Thr Leu Phe Ala Ser Asn Ser Ala Lys Glu Lys Gly Gly Ala
225                 230                 235                 240
Ile Tyr Ala Lys His Met Val Leu Arg Tyr Asn Gly Pro Val Ser Phe
                245                 250                 255
Ile Asn Asn Ser Ala Lys Ile Gly Gly Ala Ile Ala Ile Gln Ser Gly
            260                 265                 270
Gly Ser Leu Ser Ile Leu Ala Gly Glu Gly Ser Val Leu Phe Gln Asn
        275                 280                 285
Asn Ser Gln Arg Thr Ser Asp Gln Gly Leu Val Arg Asn Ala Ile Tyr
    290                 295                 300
Leu Glu Lys Asp Ala Ile Leu Ser Ser Leu Glu Ala Arg Asn Gly Asp
305                 310                 315                 320
Ile Leu Phe Phe Asp Pro Ile Val Gln Glu Ser Ser Ser Lys Glu Ser
                325                 330                 335
Pro Leu Pro Ser Ser Leu Gln Ala Ser Val Thr Ser Pro Thr Pro Ala
            340                 345                 350
Thr Ala Ser Pro Leu Val Ile Gln Thr Ser Ala Asn Arg Ser Val Ile
        355                 360                 365
Phe Ser Ser Glu Arg Leu Ser Glu Glu Glu Lys Thr Pro Asp Asn Leu
    370                 375                 380
Thr Ser Gln Leu Gln Gln Pro Ile Glu Leu Lys Ser Gly Arg Leu Val
385                 390                 395                 400
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```
Leu Lys Asp Arg Ala Val Leu Ser Ala Pro Ser Leu Ser Gln Asp Pro
                405                 410                 415
Gln Ala Leu Leu Ile Met Glu Ala Gly Thr Ser Leu Lys Thr Ser Ser
            420                 425                 430
Asp Leu Lys Leu Leu Arg
        435
<210>478
<211>148
<212>PRT
<213>Chlamydia trachomatis
<400>478
Phe Glu Val Thr Thr Leu Ser Ile Pro Leu His Ser Leu Asp Thr Glu
  1               5                  10                  15
Lys Ser Val Thr Ile His Ala Pro Asn Leu Ser Ile Gln Lys Ile Phe
            20                  25                  30
Leu Ser Asn Ser Gly Asp Glu Asn Phe Tyr Glu Asn Val Glu Leu Leu
        35                  40                  45
Ser Lys Glu Gln Asn Asn Ile Pro Leu Leu Thr Leu Pro Lys Glu Gln
    50                  55                  60
Ser His Leu His Leu Pro Asp Gly Asn Leu Ser Ser His Phe Gly Tyr
65                  70                  75                  80
Gln Gly Asp Trp Thr Phe Ser Trp Lys Asp Ser Asp Glu Gly His Ser
                85                  90                  95
Leu Ile Ala Asn Trp Thr Pro Lys Asn Tyr Val Pro His Pro Glu Arg
            100                 105                 110
Gln Ser Thr Leu Val Ala Asn Thr Leu Trp Asn Thr Tyr Ser Asp Met
        115                 120                 125
Gln Ala Val Gln Ser Met Ile Asn Thr Thr Ala His Gly Gly Ala Tyr
    130                 135                 140
Leu Phe Gly Thr
145
<210>479
<211>182
<212>PRT
<213>Chlamydia trachomatis
<400>479
Lys Gln Asn Ile Gly Ser Phe Ser Lys Glu Gly Phe Gly Ser Trp His
  1               5                  10                  15
Ser Val Ala Val Ser Gly Glu Val Cys Ala Ser Ile Pro Ile Val Ser
            20                  25                  30
Asn Gly Ser Gly Leu Phe Ser Ser Phe Ser Ile Phe Ser Lys Leu Gln
        35                  40                  45
Gly Phe Ser Gly Thr Gln Asp Gly Phe Glu Glu Ser Ser Gly Glu Ile
    50                  55                  60
Arg Ser Phe Ser Ala Ser Ser Phe Arg Asn Ile Ser Leu Pro Ile Gly
65                  70                  75                  80
Ile Thr Phe Glu Lys Lys Ser Gln Lys Thr Arg Thr Tyr Tyr Tyr Phe
                85                  90                  95
Leu Gly Ala Tyr Ile Gln Asp Leu Lys Arg Asp Val Glu Ser Gly Pro
            100                 105                 110
Val Val Leu Leu Lys Asn Ala Val Ser Trp Asp Ala Pro Met Ala Asn
        115                 120                 125
Leu Asp Ser Arg Ala Tyr Met Phe Arg Leu Thr Asn Gln Arg Ala Leu
    130                 135                 140
His Arg Leu Gln Thr Leu Leu Asn Val Ser Cys Val Leu Arg Gly Gln
145                 150                 155                 160
Ser Ile Val Thr Pro Trp Ile Trp Gly His Leu Gln Val Leu Val Pro
                165                 170                 175
Leu Pro Ser Ile Ala Phe
            180
<210>480
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<211>199
<212>PRT
<213>Chlamydia trachomatis
<400>480

```
Ile Met Val Cys Pro Leu Arg Asn Cys Cys Thr Ser His Thr Ser Thr
  1               5                  10                  15
Glu Asn Leu Pro Met Glu Glu Thr Ser Pro Leu Val Glu Ala Ile Val
            20                  25                  30
Gln Ala Val Gln Thr Cys Leu Thr Val Ala Lys His Thr Glu Asn Ala
        35                  40                  45
Lys Val Tyr Asn Gln Lys Arg Lys Arg Tyr His Gln Thr Gly Cys Trp
    50                  55                  60
Arg Gln Leu Lys Lys Leu Leu Cys Cys Cys Cys Pro Lys Glu Lys Pro
65                  70                  75                  80
Val Ser Gly Ser Ile Thr Ala Leu Ser Leu Trp Met Gln Ser His Ile
                85                  90                  95
Pro Thr Arg Gly Leu Leu Val Val Gly Tyr Ala Val Tyr Ser Ser Gly
            100                 105                 110
Val Arg Trp Glu Ala Ile Leu Glu Gly Glu Thr Leu Ser Pro Gly Asp
        115                 120                 125
Arg Ala Gln Leu Asp Ala Cys Leu Glu Ser Ala Gln Val Arg Leu Ala
    130                 135                 140
Gly Leu Met Leu Asn Tyr Trp Asp Gly Asp Phe Pro Gly Tyr Gly Thr
145                 150                 155                 160
Ser Gly Gly Arg Phe Ser Pro Arg Met Gln Glu Asp Ile Ile Ala Arg
                165                 170                 175
Phe Arg Asp Lys Val Gly Ile Cys Glu Leu Thr Asp Ala Val Ala Leu
            180                 185                 190
Lys His Phe Cys Arg Arg Thr
        195
```

<210>481
<211>305
<212>PRT
<213>Chlamydia trachomatis
<400>481

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Glu Thr Phe Thr Asn Gly Leu Lys Glu His Tyr Val Ser Arg Asp Val
  1               5                  10                  15
Gly Phe Val Ala Ser Leu His Ala Leu Gly Asp Tyr Ile Leu Asn Tyr
            20                  25                  30
Thr Gln Asp Asp Arg Asp Gly Phe Leu Ala Arg Tyr Gly Gly Phe Gln
        35                  40                  45
Ala Thr Ala Ala Cys His Tyr Glu Asn Gly Ser Ile Phe Gly Val Ala
    50                  55                  60
Phe Gly Gln Leu Tyr Gly Gln Thr Lys Ser Arg Met Tyr Tyr Ser Lys
65                  70                  75                  80
Asp Ala Gly Asn Met Thr Met Leu Ser Cys Phe Gly Arg Ser Tyr Val
                85                  90                  95
Asp Ile Lys Gly Thr Glu Thr Val Val Tyr Trp Glu Thr Ala Tyr Gly
            100                 105                 110
Tyr Ser Val His Arg Met His Thr Gln Tyr Phe Asn Asp Lys Thr Gln
        115                 120                 125
Lys Phe Asp His Ser Lys Cys His Trp His Asn Asn Asn Tyr Tyr Ala
    130                 135                 140
Phe Val Gly Ala Glu His Asn Phe Leu Glu Tyr Cys Ile Pro Thr Arg
145                 150                 155                 160
Gln Phe Ala Arg Asp Tyr Glu Leu Ala Gly Phe Met Arg Phe Glu Met
                165                 170                 175
Ala Gly Gly Trp Ser Ser Ala Thr Gln Glu Thr Gly Ser Leu Thr Arg
            180                 185                 190
Tyr Phe Ala Arg Gly Ala Gly His Asn Met Ser Leu Pro Ile Gly Ile
        195                 200                 205
```

Val Val His Ala Val Ser His Val Arg Arg Ser Pro Leu Ser Lys Leu
210 215 220
Thr Leu Asn Met Gly Tyr Xaa Pro Asp Ile Trp Arg Val Thr Pro His
225 230 235 240
Cys Asn Met Glu Ile Ile Ala Asn Gly Val Lys Thr Pro Ile Gln Gly
245 250 255
Ser Pro Leu Ala Arg His Ala Phe Phe Leu Glu Val His Asp Thr Leu
260 265 270
Tyr Ile His His Phe Gly Arg Ala Tyr Met Asn Tyr Ser Leu Asp Ala
275 280 285
Arg Arg Arg Gln Thr Ala His Phe Val Ser Met Gly Leu Asn Arg Ile
290 295 300
Phe
305

<210>482
<211>708
<212>PRT
<213>Chlamydia trachomatis
<400>482

Val Leu Ala Met Pro Phe Ser Leu Arg Ser Thr Ser Phe Cys Phe Leu
1 5 10 15
Ala Cys Leu Cys Ser Tyr Ser Tyr Gly Phe Ala Ser Ser Pro Gln Val
20 25 30
Leu Thr Pro Asn Val Thr Thr Pro Phe Lys Gly Asp Asp Val Tyr Leu
35 40 45
Asn Gly Asp Cys Ala Phe Val Asn Val Tyr Ala Gly Ala Glu Glu Gly
50 55 60
Ser Ile Ile Ser Ala Asn Gly Asp Asn Leu Thr Ile Thr Gly Gln Asn
65 70 75 80
His Thr Leu Ser Phe Thr Asp Ser Gln Gly Pro Val Leu Gln Asn Tyr
85 90 95
Ala Phe Ile Ser Ala Gly Glu Thr Leu Thr Leu Arg Asp Phe Ser Ser
100 105 110
Leu Met Phe Ser Lys Asn Val Ser Cys Gly Glu Lys Gly Met Ile Ser
115 120 125
Gly Lys Thr Val Ser Ile Ser Gly Ala Gly Glu Val Ile Phe Trp Asp
130 135 140
Asn Ser Val Gly Tyr Ser Pro Leu Ser Thr Val Pro Thr Ser Ser Ser
145 150 155 160
Thr Pro Pro Ala Pro Thr Val Ser Asp Ala Arg Lys Gly Ser Ile Phe
165 170 175
Ser Val Glu Thr Ser Leu Glu Ile Ser Gly Val Lys Lys Gly Val Met
180 185 190
Phe Asp Asn Asn Ala Gly Asn Phe Gly Thr Val Phe Arg Gly Lys Asn
195 200 205
Asn Asn Asn Ala Gly Gly Gly Gly Ser Gly Ser Ala Thr Pro Ser Ser
210 215 220
Thr Thr Phe Thr Val Lys Asn Cys Lys Gly Lys Val Ser Phe Thr Asp
225 230 235 240
Asn Val Ala Ser Cys Gly Gly Gly Val Val Tyr Lys Gly Ile Val Leu
245 250 255
Phe Lys Asp Asn Glu Gly Gly Ile Phe Phe Arg Gly Asn Thr Ala Tyr
260 265 270
Asp Asp Leu Arg Ile Leu Ala Ala Thr Asn Gln Asp Gln Asn Thr Glu
275 280 285
Thr Gly Gly Gly Gly Gly Val Ile Cys Ser Pro Asp Asp Ser Val Lys
290 295 300
Phe Glu Gly Asn Lys Gly Ser Ile Val Phe Asp Tyr Asn Phe Ala Lys
305 310 315 320
Gly Arg Gly Gly Ser Ile Leu Thr Lys Glu Phe Ser Leu Val Ala Asp
325 330 335

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```
Asp Ser Val Val Phe Ser Asn Asn Thr Ala Glu Lys Gly Gly Gly Ala
            340                 345                 350
Ile Tyr Ala Pro Thr Ile Asn Met Ser Thr Asn Gly Gly Ser Ile Leu
        355                 360                 365
Phe Glu Arg Asn Arg Ala Ala Glu Gly Gly Ala Ile Cys Val Ser Ala
    370                 375                 380
Ala Ser Ser Gly Ser Thr Gly Lys Leu Thr Leu Ser Ala Ser Asp Gly
385                 390                 395                 400
Asp Ile Val Phe Ser Gly Asn Met Thr Ser Asp Arg Pro Gly Glu Arg
                405                 410                 415
Ser Ala Val Arg Ile Leu Ser Ser Gly Thr Thr Val Ala Leu Asn Ala
            420                 425                 430
Ser Gly Leu Ser Lys Leu Ile Phe His Asp Pro Val Val Gln Ile Asn
        435                 440                 445
Ser Ala Ala Ala Ala Ser Thr Pro Ser Pro Ser Ser Ser Ser Thr Pro
    450                 455                 460
Ala Ala Val Thr Ile Asn Gln Ser Gly Asn Gly Ser Val Ile Phe Thr
465                 470                 475                 480
Ala Glu Ser Leu Thr Pro Ser Glu Lys Leu Gln Val Leu Asn Ser Thr
                485                 490                 495
Ser Asn Phe Pro Gly Thr Leu Thr Val Ser Gly Gly Glu Leu Val Val
            500                 505                 510
Thr Glu Gly Ala Thr Leu Thr Thr Gly Thr Ile Thr Ala Thr Ser Gly
        515                 520                 525
Arg Val Ser Leu Gly Ser Gly Ala Ser Leu Ser Ala Val Ala Gly Ala
    530                 535                 540
Ala Asn Asn Asn Tyr Thr Cys Thr Val Ser Lys Leu Gly Ile Asp Leu
545                 550                 555                 560
Glu Ser Phe Leu Thr Pro Asn Tyr Lys Thr Ala Ile Leu Gly Ala Tyr
                565                 570                 575
Gly Thr Val Thr Val Lys Arg Gly Ser Thr Leu Asp Leu Val Met Glu
            580                 585                 590
Asn Glu Ala Glu Val Tyr Asp Asn Pro Leu Phe Val Gly Ser Leu Thr
        595                 600                 605
Ile Pro Phe Val Thr Leu Ser Ser Ser Ser Thr Arg Ser Gly Val Met
    610                 615                 620
Val Ala Gly Val Cys Asp Val Asp Ala Asp Ala Ala His Tyr Gly Tyr
625                 630                 635                 640
Gln Gly Ser Trp Ser Ala Asp Trp Thr Lys Pro Pro Leu Ala Pro Asp
                645                 650                 655
Ala Lys Gly Met Val Pro Pro Asn Thr Ser Asn Thr Leu Tyr Leu Thr
            660                 665                 670
Trp Arg Pro Ala Ser Asn Tyr Gly Glu Tyr Arg Leu Asp Pro Gln Arg
        675                 680                 685
Lys Gly Glu Leu Val Pro Asn Ser Leu Trp Val Ala Gly Ser Ala Leu
    690                 695                 700
Arg Asn Leu Tyr
705
<210>483
<211>140
<212>PRT
<213>Chlamydia trachomatis
<400>483
Leu Tyr Leu Asn Glu Leu Arg Pro Phe Val Gln Ala Glu Phe Ser Tyr
  1                 5                  10                  15
Ala Asp His Glu Ser Phe Thr Glu Glu Gly Asp Gln Ala Arg Ala Phe
             20                  25                  30
Lys Ser Gly His Leu Leu Asn Leu Ser Val Pro Val Gly Val Lys Phe
         35                  40                  45
Asp Arg Cys Ser Ser Thr His Pro Asn Lys Tyr Ser Phe Met Ala Ala
     50                  55                  60
```

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Tyr Ile Cys Asp Ala Tyr Arg Thr Ile Ser Gly Thr Glu Thr Thr Leu
 65                  70                  75                  80
Leu Ser His Gln Glu Thr Trp Thr Thr Asp Ala Phe His Leu Ala Arg
                85                  90                  95
His Gly Val Val Val Arg Gly Ser Met Tyr Ala Ser Leu Thr Ser Asn
            100                 105                 110
Ile Glu Val Tyr Gly His Gly Arg Tyr Glu Tyr Arg Asp Ala Ser Arg
        115                 120                 125
Gly Tyr Gly Leu Ser Ala Gly Ser Arg Val Arg Phe
    130                 135                 140
<210>484
<211>212
<212>PRT
<213>Chlamydia trachomatis
<400>484
Gly Met Arg Cys Leu Ser Met Ala Ile Lys Glu Ala Gly Ser Leu Arg
  1               5                  10                  15
Gly Ile Leu Asn Thr Ala Asn Asn Gly Pro Tyr Thr Leu Lys Ala Thr
             20                  25                  30
Trp Thr Lys Thr Gly Tyr Asn Pro Gly Pro Glu Arg Val Ala Ser Leu
         35                  40                  45
Val Pro Asn Ser Leu Trp Gly Ser Ile Leu Asp Ile Arg Ser Ala His
     50                  55                  60
Ser Ala Ile Gln Ala Ser Val Asp Gly Arg Ser Tyr Cys Arg Gly Leu
 65                  70                  75                  80
Trp Val Ser Gly Val Ser Asn Phe Phe Tyr His Asp Arg Asp Ala Leu
                85                  90                  95
Gly Gln Gly Tyr Arg Tyr Ile Ser Gly Gly Tyr Ser Leu Gly Ala Asn
            100                 105                 110
Ser Tyr Phe Gly Ser Ser Met Phe Gly Leu Ala Phe Thr Glu Val Phe
        115                 120                 125
Gly Arg Ser Lys Asp Tyr Val Val Cys Arg Ser Asn His His Ala Cys
    130                 135                 140
Ile Gly Ser Val Tyr Leu Ser Thr Gln Gln Ala Leu Cys Gly Ser Tyr
145                 150                 155                 160
Leu Phe Gly Asp Ala Phe Ile Arg Ala Ser Tyr Gly Phe Gly Asn Gln
                165                 170                 175
His Met Lys Thr Ser Tyr Thr Phe Ala Glu Glu Ser Asp Val Arg Trp
            180                 185                 190
Asp Asn Asn Cys Leu Ala Gly Glu Ile Gly Ala Gly Leu Pro Ile Val
        195                 200                 205
Ile Thr Pro Ser
    210
<210>485
<211>115
<212>PRT
<213>Chlamydia trachomatis
<400>485
Ser Val Asp His Ala Phe Gln Ser Ala Phe Val Ser Phe Phe Phe Val
  1               5                  10                  15
Ser Lys Gln Cys Ser Tyr Glu Ser Ser Tyr Gln Ser Ser Ser Ala Arg
             20                  25                  30
Phe Ser Ile Leu Gln Ser Leu Val Ala Gln Leu Leu Val Leu Leu Gln
         35                  40                  45
Leu Val Gly Leu Ser Phe Leu Arg Ile Trp Met Ile Gln Leu Asn Asp
     50                  55                  60
Arg Tyr Asp Trp Leu Gly Ser Asn Gln Lys Ile Asn Val Leu Lys Leu
 65                  70                  75                  80
Gln Leu Gly Thr Lys Pro Pro Ala Asn Ala Pro Ser Asp Leu Thr Leu
                85                  90                  95
Gly Asn Glu Met Pro Lys Tyr Gly Tyr Gln Gly Ser Trp Lys Leu Ala
```

100 105 110

Trp Asp Ser
115

<210>486
<211>524
<212>PRT
<213>Chlamydia trachomatis
<400>486

```
Val Val Phe Gly Asn Leu Leu Gly Ser Phe Thr Val Leu Gly Arg Gly
  1               5                  10                  15
His Ser Leu Thr Phe Glu Asn Ile Arg Thr Ser Thr Asn Gly Ala Ala
            20                  25                  30
Leu Ser Asn Ser Ala Ala Asp Gly Leu Phe Thr Ile Glu Gly Phe Lys
        35                  40                  45
Glu Leu Ser Phe Ser Asn Cys Asn Ser Leu Leu Ala Val Leu Pro Ala
    50                  55                  60
Ala Thr Thr Asn Lys Gly Ser Gln Thr Pro Thr Thr Thr Ser Thr Pro
65                  70                  75                  80
Ser Asn Gly Thr Ile Tyr Ser Lys Thr Asp Leu Leu Leu Leu Asn Asn
                85                  90                  95
Glu Lys Phe Ser Phe Tyr Ser Asn Leu Val Ser Gly Asp Gly Gly Ala
            100                 105                 110
Ile Asp Ala Lys Ser Leu Thr Val Gln Gly Ile Ser Lys Leu Cys Val
        115                 120                 125
Phe Gln Glu Asn Thr Ala Gln Ala Asp Gly Gly Ala Cys Gln Val Val
    130                 135                 140
Thr Ser Phe Ser Ala Met Ala Asn Glu Ala Pro Ile Ala Phe Val Ala
145                 150                 155                 160
Asn Val Ala Gly Val Arg Gly Gly Gly Ile Ala Ala Val Gln Asp Gly
                165                 170                 175
Gln Gln Gly Val Ser Ser Ser Thr Ser Thr Glu Asp Pro Val Val Ser
            180                 185                 190
Phe Ser Arg Asn Thr Ala Val Glu Phe Asp Gly Asn Val Ala Arg Val
        195                 200                 205
Gly Gly Gly Ile Tyr Ser Tyr Gly Asn Val Ala Phe Leu Asn Asn Gly
    210                 215                 220
Lys Thr Leu Phe Leu Asn Asn Val Ala Phe Pro Val Tyr Ile Ala Ala
225                 230                 235                 240
Lys Gln Pro Thr Ser Gly Gln Ala Ser Asn Thr Ser Asn Asn Tyr Gly
                245                 250                 255
Asp Gly Gly Ala Ile Phe Cys Lys Asn Gly Ala Gln Val Gly Ser Asn
            260                 265                 270
Asn Ser Gly Ser Val Ser Phe Asp Gly Glu Gly Val Val Phe Phe Ser
        275                 280                 285
Ser Asn Val Ala Ala Gly Lys Gly Gly Ala Ile Tyr Ala Lys Lys Leu
    290                 295                 300
Ser Val Ala Asn Cys Gly Pro Val Gln Phe Leu Arg Asn Ile Ala Asn
305                 310                 315                 320
Asp Gly Gly Ala Ile Tyr Leu Gly Glu Ser Gly Glu Leu Ser Leu Ser
                325                 330                 335
Ala Asp Tyr Gly Asp Ile Ile Phe Asp Gly Asn Leu Lys Arg Thr Ala
            340                 345                 350
Lys Glu Asn Ala Ala Asp Val Asn Gly Val Thr Val Ser Ser Gln Ala
        355                 360                 365
Ile Ser Met Gly Ser Gly Gly Lys Ile Thr Thr Leu Arg Ala Lys Ala
    370                 375                 380
Gly His Gln Ile Leu Phe Asn Asp Pro Ile Glu Met Ala Asn Gly Asn
385                 390                 395                 400
Asn Gln Pro Ala Gln Ser Ser Lys Leu Leu Lys Ile Asn Asp Gly Glu
                405                 410                 415
Gly Tyr Thr Gly Asp Ile Val Phe Ala Asn Gly Ser Ser Thr Leu Tyr
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```
            420                 425                 430
Gln Asn Val Thr Ile Glu Gln Gly Arg Ile Val Leu Arg Glu Lys Ala
        435                 440                 445
Lys Leu Ser Val Asn Ser Leu Ser Gln Thr Gly Gly Ser Leu Tyr Met
    450                 455                 460
Glu Ala Gly Ser Thr Leu Asp Phe Val Thr Pro Gln Pro Pro Gln Gln
465                 470                 475                 480
Pro Pro Ala Ala Asn Gln Leu Ile Thr Leu Ser Asn Leu His Leu Ser
                485                 490                 495
Leu Ser Ser Leu Leu Ala Asn Asn Ala Val Thr Asn Pro Pro Thr Asn
            500                 505                 510
Pro Pro Ala Gln Asp Ser Gln Ser Cys Ser His Trp
        515                 520
<210>487
<211>79
<212>PRT
<213>Chlamydia trachomatis
<400>487
Leu Ile Leu Ser Leu Ser Phe Cys Val Met Gln Thr Ser Phe His Lys
  1               5                  10                  15
Phe Phe Leu Ser Met Ile Leu Ala Tyr Ser Cys Cys Ser Leu Asn Gly
            20                  25                  30
Gly Gly Tyr Ala Ala Glu Ile Met Val Pro Gln Gly Ile Tyr Asp Gly
        35                  40                  45
Glu Thr Leu Thr Val Ser Phe Pro Tyr Thr Val Ile Gly Asp Pro Ser
    50                  55                  60
Gly Thr Thr Val Phe Ser Ala Gly Glu Leu Thr Leu Lys Asn Pro
65                  70                  75
<210>488
<211>522
<212>PRT
<213>Chlamydia trachomatis
<400>488
Pro Ala Met Ile Lys Arg Thr Ser Leu Ser Phe Ala Cys Leu Ser Phe
  1               5                  10                  15
Phe Tyr Leu Ser Thr Ile Ser Ile Leu Gln Ala Asn Glu Thr Asp Thr
            20                  25                  30
Leu Gln Phe Arg Arg Phe Thr Phe Ser Asp Arg Glu Ile Gln Phe Val
        35                  40                  45
Leu Asp Pro Val Ser Leu Ile Thr Ala Gln Asn Val Thr Phe Ser Asn
    50                  55                  60
Ile Asn Ser Trp Gly Arg Gly Val Cys Thr Ile Ala Asp Asn Thr Gln
65                  70                  75                  80
Thr Gln Ile Phe Ser Asn Ser Ile Asn Thr Thr Ser Ala Ala Gly Gly
                85                  90                  95
Val Phe Asp Met Val Thr Ile Ser Phe Thr Ala Ser Asn Asn Ala Asn
            100                 105                 110
Leu Leu Phe Cys Asn Asn Tyr Cys Thr His Asn Lys Gly Gly Gly Ala
        115                 120                 125
Ile Arg Ser Lys Gly Pro Ile Arg Phe Ser Asn Asn Gln Asp Val Leu
    130                 135                 140
Phe Tyr Asn Asn Thr Thr Ala Gly Ala Gln Tyr Thr Gly Thr Gly Asn
145                 150                 155                 160
Lys Ser Glu Lys Asn Arg Gly Gly Ala Leu Tyr Ala Lys Asn Ile Thr
                165                 170                 175
Leu Thr Gly Asn Arg Thr Leu Ala Phe Ile Asn Asn Met Ser Gly Asp
            180                 185                 190
Cys Gly Gly Ala Ile Ala Ala Asn Thr Gln Ile Ser Ile Thr Asp Thr
        195                 200                 205
Ala Lys Gly Val Leu Phe Glu Asn Asn His Thr Leu Asn His Ile Pro
    210                 215                 220
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Asp Thr Arg Ala Glu Asn Met Ala Arg Gly Gly Ala Ile Cys Ser Arg
225                 230                 235                 240
Lys Ser Ser Cys Ser Ile Ser Asn Asn Leu Gly Pro Ile Ile Phe Asn
                245                 250                 255
Tyr Asn Gln Gly Gly Lys Gly Gly Ala Ile Ser Ala Thr Gln Cys Val
            260                 265                 270
Ile Ser Asn Asn Glu Glu Arg Ile Val Phe Ser Asn Asn Ser Ser Ile
        275                 280                 285
Gly Trp Asn Lys Ser Thr His Ala Ser Asn Gly Gly Ala Ile Gln Thr
    290                 295                 300
Ala Gln Gly Phe Thr Leu Gln Asn Asn Lys Gly Pro Ile Tyr Phe Asp
305                 310                 315                 320
Ser Asn Thr Ala Ala His Ala Gly Gly Ala Ile Asp Cys Gly Tyr Ile
                325                 330                 335
Asp Ile Arg Asn Asn Gly Pro Ile Tyr Phe Leu Asn Asn Ser Ala Ala
            340                 345                 350
Trp Gly Ala Ala Phe Asn Leu Ser Lys Leu Arg Pro Ala Thr Asn Tyr
        355                 360                 365
Ile His Thr Gly Thr Gly Asp Ile Val Phe Asn Asn Asn Val Val Phe
    370                 375                 380
Lys Phe Asp Ala Asn Leu Leu Gly Met Arg Lys Leu Phe His Ile Asn
385                 390                 395                 400
Asn Asn Thr Gln Thr Pro Tyr Thr Leu Ser Leu Gly Ala Lys Glu Asp
                405                 410                 415
Thr Arg Ile Tyr Phe Tyr Asp Leu Phe Gln Trp Glu Arg Val Arg Glu
            420                 425                 430
Pro Asn Asn Ala Gln Val Ser Pro Ser Ser Arg Asn Val Ile Thr Ile
        435                 440                 445
Asn Pro Ile Glu Glu Phe Ser Gly Ala Val Val Phe Ser Tyr Lys Gln
    450                 455                 460
Met Ser Ser Asp Ile Lys Thr Leu Met Gly Thr Glu His Asn Tyr Ile
465                 470                 475                 480
Arg Glu Ala Pro Thr Thr Leu Lys Phe Gly Thr Leu Ala Ile Glu Asp
                485                 490                 495
Gly Ala Glu Leu Glu Phe Phe Asp Ile Pro Phe Thr Gln Asn Pro Thr
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Ser Leu Leu Ala Leu Gly Ser Asp Leu Arg
        515                 520
<210>489
<211>521
<212>PRT
<213>Chlamydia trachomatis
<400>489
Ser Thr Cys Phe Arg Lys Arg Pro Thr Leu Thr Val Gly Lys His Gly
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Lys Leu Asn Ile Thr Asn Leu Gly Val Ile Leu Pro Ile Ile Leu Lys
             20                  25                  30
Glu Gly Lys Ser Pro Pro Cys Ile Arg Val Asn Pro Gln Asp Met Thr
         35                  40                  45
Gln Asn Thr Asp Thr Gly Gln Thr Pro Ser Ser Thr Ser Ser Ile Ser
     50                  55                  60
Thr Pro Met Ile Ile Phe Asn Gly Arg Leu Ser Ile Val Asp Glu Asn
 65                  70                  75                  80
Tyr Glu Ser Val Tyr Asp Ser Met Asp Leu Ser Arg Gly Lys Ala Glu
                 85                  90                  95
Gln Pro Ile Leu Ser Ile Glu Thr Thr Asn Asp Gly Gln Leu Gly Pro
            100                 105                 110
Asn Trp Gln Asn Ser Leu Asn Thr Ser Leu Leu Ser Pro Pro His Tyr
        115                 120                 125
Gly Tyr Gln Gly Leu Trp Thr Pro Asn Trp Ile Thr Thr Thr Tyr Thr
    130                 135                 140
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Ile Thr Leu Asn Asn Asn Ser Ser Ala Pro Thr Ser Ala Asn Ser Ile
145                 150                 155                 160
Ala Glu Gln Lys Lys Thr Ser Glu Thr Phe Thr Pro Asn Ser Thr Thr
                165                 170                 175
Thr Ala Gly Ile Pro Ser Ile Lys Ala Ser Ala Gly Ser Gly Ser Gly
            180                 185                 190
Ser Ser Thr Thr Thr Asp Val Gln Val Thr Arg His Thr Leu Thr Val
        195                 200                 205
Asn Trp Thr Pro Val Gly Tyr Ile Val Asp Pro Ile Arg Arg Gly Asp
    210                 215                 220
Leu Ile Ala Asn Ser Leu Val His Ser Gly Arg Asn Met Thr Met Gly
225                 230                 235                 240
Leu Arg Ser Leu Leu Pro Asp Asn Ser Trp Phe Ala Leu Gln Gly Ala
                245                 250                 255
Ala Thr Thr Leu Phe Thr Lys Gln Gln Lys Arg Leu Ser Tyr His Gly
            260                 265                 270
Tyr Ser Ser Ala Ser Lys Gly Tyr Thr Val Ser Ser Gln Ala Ser Gly
        275                 280                 285
Ala His Gly His Lys Phe Leu Leu Ser Phe Ser Gln Ser Ser Asp Lys
    290                 295                 300
Met Lys Glu Lys Glu Thr Asn Asn Arg Leu Ser Ser Arg Tyr Tyr Leu
305                 310                 315                 320
Ser Ala Leu Cys Phe Glu His Pro Met Phe Asp Arg Ile Ala Leu Ile
                325                 330                 335
Gly Ala Ala Ala Cys Asn Tyr Gly Thr His Asn Met Arg Ser Phe Tyr
            340                 345                 350
Gly Thr Lys Arg Ser Ser Lys Gly Lys Phe His Ser Thr Thr Leu Gly
        355                 360                 365
Ala Ser Leu Arg Cys Glu Leu Arg Asp Ser Met Pro Leu Arg Ser Ile
    370                 375                 380
Met Leu Thr Pro Phe Ala Gln Ala Leu Phe Ser Arg Thr Lys Pro Gly
385                 390                 395                 400
Ala Ile Arg Glu Ser Gly Asp Leu Ala Arg Leu Phe Thr Leu Glu Gln
                405                 410                 415
Ala His Thr Ala Ile Val Ser Pro Ile Gly Ile Lys Gly Ala Tyr Ser
            420                 425                 430
Ser Asp Thr Trp Pro Thr Leu Ser Trp Glu Met Glu Leu Ala Tyr Gln
        435                 440                 445
Pro Thr Leu Tyr Trp Lys Arg Pro Leu Leu Asn Thr Leu Leu Ile Gln
    450                 455                 460
Asn Asn Gly Ser Trp Val Thr Thr Asn Thr Pro Leu Ala Lys His Ser
465                 470                 475                 480
Phe Tyr Gly Arg Gly Ser His Ser Leu Lys Phe Ser His Leu Lys Leu
                485                 490                 495
Phe Ala Asn Tyr Gln Ala Glu Val Ala Thr Ser Thr Val Ser His Tyr
            500                 505                 510
Ile Asn Ala Gly Gly Ala Leu Val Phe
        515                 520
<210>490
<211>989
<212>PRT
<213>Chlamydia trachomatis
<400>490
Leu Ser Ser Arg Ser Gly Tyr Phe His Cys Leu Thr Leu His Gln Cys
  1               5                  10                  15
Arg Arg Ser Ser Gly Leu Leu Thr Met Lys Lys Ala Phe Phe Phe Phe
             20                  25                  30
Leu Ile Gly Ser Ser Leu Ser Gly Leu Ala Arg Glu Val Pro Ser Arg
         35                  40                  45
Ile Phe Leu Met Pro Asn Ser Val Pro Asp Pro Thr Lys Glu Ser Leu
     50                  55                  60
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Ser Asn Lys Ile Ser Leu Thr Gly Asp Thr His Asn Leu Thr Asn Cys
 65                  70                  75                  80
Tyr Leu Asp Asn Leu Arg Tyr Ile Leu Ala Ile Leu Gln Lys Thr Pro
                 85                  90                  95
Asn Glu Gly Ala Ala Val Thr Ile Thr Asp Tyr Leu Ser Phe Phe Asp
            100                 105                 110
Thr Gln Lys Glu Gly Ile Tyr Phe Ala Lys Asn Leu Thr Pro Glu Ser
        115                 120                 125
Gly Gly Ala Ile Gly Tyr Ala Ser Pro Asn Ser Pro Thr Val Glu Ile
    130                 135                 140
Arg Asp Thr Ile Gly Pro Val Ile Phe Glu Asn Asn Thr Cys Cys Arg
145                 150                 155                 160
Pro Phe Thr Ser Ser Asn Pro Asn Ala Ala Val Asn Lys Ile Arg Glu
                165                 170                 175
Gly Gly Ala Ile His Ala Gln Asn Leu Tyr Ile Asn His Asn His Asp
            180                 185                 190
Val Val Gly Phe Met Lys Asn Phe Ser Tyr Val Arg Gly Gly Ala Ile
        195                 200                 205
Ser Thr Ala Asn Thr Phe Val Val Ser Glu Asn Gln Ser Cys Phe Leu
    210                 215                 220
Phe Met Asp Asn Ile Cys Ile Gln Thr Asn Thr Ala Gly Lys Gly Gly
225                 230                 235                 240
Ala Ile Tyr Ala Gly Thr Ser Asn Ser Phe Glu Ser Asn Asn Cys Asp
                245                 250                 255
Leu Phe Phe Ile Asn Asn Ala Cys Cys Ala Gly Gly Ala Ile Phe Ser
            260                 265                 270
Pro Ile Cys Ser Leu Thr Gly Asn Arg Gly Asn Ile Val Phe Tyr Asn
        275                 280                 285
Asn Arg Cys Phe Lys Asn Val Glu Thr Ala Ser Ser Glu Ser Ser Asp
    290                 295                 300
Gly Gly Ala Ile Lys Val Thr Thr Arg Leu Asp Val Thr Gly Asn Arg
305                 310                 315                 320
Gly Arg Ile Phe Phe Ser Asp Asn Ile Thr Lys Asn Tyr Gly Gly Ala
                325                 330                 335
Ile Tyr Ala Pro Val Val Thr Leu Val Asp Asn Gly Pro Thr Tyr Phe
            340                 345                 350
Ile Asn Asn Ile Ala Asn Asn Lys Gly Gly Ala Ile Tyr Ile Asp Gly
        355                 360                 365
Thr Ser Asn Ser Lys Ile Ser Ala Asp Arg His Ala Ile Ile Phe Asn
    370                 375                 380
Glu Asn Ile Val Thr Asn Val Thr Asn Ala Asn Gly Thr Ser Thr Ser
385                 390                 395                 400
Ala Asn Pro Pro Arg Arg Asn Ala Ile Thr Val Ala Ser Ser Ser Gly
                405                 410                 415
Glu Ile Leu Leu Gly Ala Gly Ser Ser Gln Asn Leu Ile Phe Tyr Asp
            420                 425                 430
Pro Ile Glu Val Ser Asn Ala Gly Val Ser Val Ser Phe Asn Lys Glu
        435                 440                 445
Ala Asp Gln Thr Gly Ser Val Val Phe Ser Gly Ala Thr Val Asn Ser
    450                 455                 460
Ala Asp Phe His Gln Arg Asn Leu Gln Thr Lys Thr Pro Ala Pro Leu
465                 470                 475                 480
Thr Leu Ser Asn Gly Phe Leu Cys Ile Glu Asp His Ala Gln Leu Thr
                485                 490                 495
Val Asn Arg Phe Thr Gln Thr Gly Gly Val Val Ser Leu Gly Asn Gly
            500                 505                 510
Ala Val Leu Ser Cys Tyr Lys Asn Gly Ala Gly Asn Ser Ala Ser Asn
        515                 520                 525
Ala Ser Ile Thr Leu Lys His Ile Gly Leu Asn Leu Ser Ser Ile Leu
    530                 535                 540
Lys Ser Gly Ala Glu Ile Pro Leu Leu Trp Val Glu Pro Thr Asn Asn
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Docket No. 4740-0-PCT-US

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545                 550                 555                 560
Ser Asn Asn Tyr Thr Ala Asp Thr Ala Ala Thr Phe Ser Leu Ser Asp
                565                 570                 575
Val Lys Leu Ser Leu Ile Asp Asp Tyr Gly Asn Ser Pro Tyr Glu Ser
            580                 585                 590
Thr Asp Leu Thr His Ala Leu Ser Ser Gln Pro Met Leu Ser Ile Ser
        595                 600                 605
Glu Ala Ser Asp Asn Gln Leu Arg Ser Asp Asp Met Asp Phe Ser Gly
    610                 615                 620
Leu Asn Val Pro His Tyr Gly Trp Gln Gly Leu Trp Ser Trp Gly Trp
625                 630                 635                 640
Ala Lys Thr Gln Asp Pro Glu Pro Ala Ser Ser Ala Thr Ile Thr Asp
                645                 650                 655
Pro Lys Lys Ala Asn Arg Phe His Arg Thr Leu Leu Leu Thr Trp Leu
            660                 665                 670
Pro Ala Gly Tyr Val Pro Ser Pro Lys His Arg Ser Pro Leu Ile Ala
        675                 680                 685
Asn Thr Leu Trp Gly Asn Met Leu Leu Ala Thr Glu Ser Leu Lys Asn
    690                 695                 700
Ser Ala Glu Leu Thr Pro Ser Asp His Pro Phe Trp Gly Ile Thr Gly
705                 710                 715                 720
Gly Gly Leu Gly Met Met Val Tyr Gln Asp Pro Arg Glu Asn His Pro
                725                 730                 735
Gly Phe His Met Arg Ser Ser Gly Tyr Ser Ala Gly Met Ile Ala Gly
            740                 745                 750
Gln Thr His Thr Phe Ser Leu Lys Phe Ser Gln Thr Tyr Thr Lys Leu
        755                 760                 765
Asn Glu Arg Tyr Ala Lys Asn Asn Val Ser Ser Lys Asn Tyr Ser Cys
    770                 775                 780
Gln Gly Glu Met Leu Phe Ser Leu Gln Glu Gly Phe Leu Leu Ala Lys
785                 790                 795                 800
Leu Val Gly Leu Tyr Ser Tyr Gly Asp His Asn Cys His His Phe Tyr
                805                 810                 815
Thr Gln Gly Glu Asn Leu Thr Ser Gln Gly Thr Phe Arg Ser Gln Thr
            820                 825                 830
Met Gly Gly Ala Val Phe Phe Asp Leu Pro Met Lys Pro Phe Gly Ser
        835                 840                 845
Thr His Ile Leu Thr Ala Pro Phe Leu Gly Ala Leu Gly Ile Tyr Ser
    850                 855                 860
Ser Leu Ser His Phe Thr Glu Val Gly Ala Tyr Pro Arg Ser Phe Ser
865                 870                 875                 880
Thr Lys Thr Pro Leu Ile Asn Val Leu Val Pro Ile Gly Val Lys Gly
                885                 890                 895
Ser Phe Met Asn Ala Thr Gln Arg Pro Gln Ala Trp Thr Val Glu Leu
            900                 905                 910
Ala Tyr Gln Pro Val Leu Tyr Arg Gln Glu Leu Glu Ile Ala Thr Gln
        915                 920                 925
Leu Leu Ala Ser Lys Gly Ile Trp Phe Gly Ser Gly Ser Pro Ser Ser
    930                 935                 940
Arg His Ala Met Ser Tyr Lys Ile Ser Gln Gln Thr Gln Pro Leu Ser
945                 950                 955                 960
Trp Leu Thr Leu His Phe Gln Tyr His Gly Phe Tyr Ser Ser Ser Thr
                965                 970                 975
Phe Cys Asn Tyr Leu Asn Gly Glu Ile Ala Leu Arg Phe
            980                 985
<210>491
<211>168
<212>PRT
<213>Chlamydia trachomatis
<400>491
Arg Thr Asp Arg Gly Glu Asp Arg Ser Ser Cys Thr Thr Gly Val Ile
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Asp Lys Glu Glu Ile Ala Val Ile Thr Leu Lys Arg Ile Ala Arg Ser
            20                  25                  30
Ser Ile Asp Ser Ala Thr Phe Ser Cys Cys Ile Ser Leu Asn Thr Asp
        35                  40                  45
Val Val His Lys Glu Lys Thr Arg Leu Ile Leu Ala His Asn Lys Gly
    50                  55                  60
Ile Ser Gly Thr Asn Gly Ser Ser Ser Asp Ile Arg Lys Val Leu His
65                  70                  75                  80
Lys Ser Asp His Ile Met Ile Val Ile Tyr Val Lys Ile Leu Ser Met
                85                  90                  95
Asn Cys Ser Ala Phe Ser Tyr Phe Ile Asn Ser Cys Ile Arg Ile Thr
            100                 105                 110
Arg Cys Lys Trp Ser Ala Thr Ser Ile Ile Phe Lys Asp Tyr Arg Thr
        115                 120                 125
Tyr Cys Ile Thr Asn Leu His Gly Arg Arg Ile Gly Thr Arg Ile Thr
    130                 135                 140
Asn Arg Thr Thr Thr Phe Arg Gly Glu Ile Phe Cys Lys Ile Asn Thr
145                 150                 155                 160
Phe Phe Leu Cys Ile Lys Lys Ala
                165
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<210>492
<211>348
<212>PRT
<213>Chlamydia trachomatis
<400>492

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Phe Ser Ser Phe Thr Pro Phe Leu Ile Tyr Asn Pro Ser Leu Gly Ala
  1               5                  10                  15
Ala Lys His Thr Leu Leu Leu Arg Ser Asn Leu Pro Ser Leu Phe Gln
            20                  25                  30
Tyr Leu Phe Arg Leu Leu Leu Leu Pro Tyr Arg Val Leu Ser Thr Pro
        35                  40                  45
Pro Pro Pro Val Ile Ser Arg Pro Ser Thr Pro Ser Ala Pro Lys Pro
    50                  55                  60
Ser Thr Pro Pro Pro Leu Leu Pro Lys Ala Pro Lys Pro Val Lys Thr
65                  70                  75                  80
Gln Glu Asp Leu Leu Pro Leu Val Pro Glu Gln Val Phe Val Glu Met
                85                  90                  95
Tyr Glu Asp Met Ala Arg Arg Gln Thr Ile Glu Ala Leu Val Pro Ala
            100                 105                 110
Trp Asp Ser Asp Ile Ile Phe Lys Cys Leu Cys Tyr Phe His Thr Leu
        115                 120                 125
Tyr Pro Gly Leu Ile Pro Leu Glu Thr Phe Pro Pro Ala Thr Ile Phe
    130                 135                 140
Asn Phe Lys Gln Lys Ile Ile Ser Ile Leu Glu Asp Lys Lys Ala Val
145                 150                 155                 160
Leu Arg Gly Glu Pro Ile Lys Gly Pro Leu Pro Ile Trp Cys Ser Lys
                165                 170                 175
Glu Asn Tyr Arg Arg His Leu Gln Arg Thr Thr Leu Leu Pro Val Phe
            180                 185                 190
Met Trp Tyr His Pro Thr Pro Lys Thr Leu Ser Asp Thr Met Gln Thr
        195                 200                 205
Met Lys Gln Leu Ala Ile Lys Gly Ser Val Gly Ala Ser His Trp Leu
    210                 215                 220
Leu Val Ile Val Asp Ile Gln Ala Arg Arg Leu Val Tyr Xaa Asp Ser
225                 230                 235                 240
Leu Tyr Asn Tyr Val Met Pro Pro Glu Asn Met Lys Lys Glu Leu Gln
                245                 250                 255
Ser Phe Ala Gln Gln Leu Asp Gln Val Tyr Pro Ala Tyr Asp Ser Lys
            260                 265                 270
Lys Phe Ser Val Lys Ile Ala Ala Lys Glu Val Ile Gln Arg Gly Ser
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        275                 280                 285
Gly Ser Ser Cys Gly Ala Trp Cys Cys Gln Phe Leu His Trp Tyr Leu
    290                 295                 300
Lys Asp Pro Leu Thr Asp Ala Leu Asn Asp Leu Pro Val Asp Ser Val
305                 310                 315                 320
Glu Arg His Glu Asn Leu Ala Ser Phe Val Gln Ala Cys Glu Ala Ala
                325                 330                 335
Val Gln Asp Leu Pro Glu Leu Ser Trp Pro Glu Ala
            340                 345
<210>493
<211>113
<212>PRT
<213>Chlamydia trachomatis
<400>493
His Arg His Leu Lys Ile Met Ser Glu Ser Gln Ala Gly Thr Asn Ala
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Ser Met Val Cys Arg Arg Ala Ile Ser Ser Tyr Ile Ser Thr Asn Thr
             20                  25                  30
Cys Ser Gly Thr Lys Gly Arg Arg Ser Ser Cys Val Leu Thr Gly Leu
         35                  40                  45
Gly Ala Leu Gly Arg Arg Gly Gly Gly Val Glu Gly Phe Gly Ala Glu
     50                  55                  60
Gly Val Leu Gly Arg Asp Met Thr Gly Gly Gly Gly Val Leu Arg Thr
 65                  70                  75                  80
Arg Tyr Gly Lys Arg Arg Arg Arg Lys Arg Tyr Trp Asn Arg Asp Gly
                85                  90                  95
Arg Leu Leu Leu Ser Arg Arg Val Cys Leu Ala Ala Pro Arg Glu Gly
            100                 105                 110
Leu

<210>494
<211>339
<212>PRT
<213>Chlamydia trachomatis
<400>494
Leu Phe Val Cys Leu Ile Asn Glu Gln Phe Ile Met Glu Pro Ile His
  1               5                  10                  15
Asn Pro Pro Pro Gln Thr Cys Ser Tyr Ser Arg Pro Ser Thr Thr Tyr
             20                  25                  30
Thr Ser Phe Lys Asp Ala Ser Cys Asp Thr Lys Val Thr Arg Ile Ile
         35                  40                  45
Ile Ala Leu Phe Leu Ile Val Ile Ser Cys Gly Leu Ile Leu Cys Ala
     50                  55                  60
Tyr Thr Phe Arg Asp Leu Leu Asp Ala Asp Tyr Leu Ala Gln Glu Gly
 65                  70                  75                  80
Pro Gln Gln Ala Thr Lys Leu Leu Gln Gln Leu Asp Asp Val Leu Thr
                85                  90                  95
Gly Pro Pro Leu Pro Ile Trp Asp Asn Glu His Leu Phe Gln Phe Ser
            100                 105                 110
Cys Leu Met Gln Asn Lys His Arg Arg Val Leu Pro Ile Asp Ile Cys
        115                 120                 125
Asn Pro Leu Thr Lys Phe Asn Phe Leu Glu Cys Ile Cys Asn Cys Leu
    130                 135                 140
Met Thr Lys Gln Ser Val Asn Val Asn Glu Thr Asp Met Cys Glu Leu
145                 150                 155                 160
Phe Cys Pro Pro Thr Cys Thr Pro Glu Asn Tyr Arg Arg Leu Leu Cys
                165                 170                 175
Thr Ser Ser Val Phe Pro Phe Val Met Trp His Asp Pro Ser Ala Asp
            180                 185                 190
Thr Gln Glu Ala Met Leu Thr Lys Met Asp Gln Thr Met Ser Ser Gly
        195                 200                 205
```

```
Arg Val Gly Asn Ser His Trp Val Leu Val Ile Val Asp Ile Glu Tyr
    210                 215                 220
Arg Cys Val Thr Phe Phe Asp Ser Leu Cys Asp Tyr Val Ala Ser Pro
225                 230                 235                 240
Gln Gln Met Arg Glu Gln Leu Glu Gly Leu Ala Val Ser Leu Gly Ala
                245                 250                 255
Ile Tyr Pro Lys Glu Gly Gly Ala Asp Ser Asp Gln Glu Glu Leu Leu
            260                 265                 270
Ser Pro Phe Gln Val Arg Ile Gly Ser Thr Val Lys Val Gln Ser Pro
        275                 280                 285
Gly Glu Phe Thr Cys Gly Ala Trp Cys Cys Gln Phe Leu Ala Trp Tyr
    290                 295                 300
Leu Glu Asn Pro Asp Phe Asp Leu Glu Glu Lys Val Pro Thr Asn Pro
305                 310                 315                 320
Ser Glu Arg Arg Ala Leu Leu Ala Asp Phe Ile Ser Thr Thr Glu Gln
                325                 330                 335
Ala Met Ser

<210>495
<211>753
<212>PRT
<213>Chlamydia trachomatis
<400>495
Pro Arg Ile Tyr Gly Thr Val Phe Val Asn Lys Cys Arg Lys Tyr Cys
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Gly Pro Phe Phe Leu Asn Thr Gln His Val Glu Leu Leu Val Ser Gly
             20                  25                  30
Lys Gln Ser Ser Pro Gln Asp Leu Leu Gly Ile Val Ser Glu Ser Leu
         35                  40                  45
Asn Gln Asp Arg Ile Val Leu Phe Arg Pro Gly Ala Glu Thr Val Phe
     50                  55                  60
Val Glu Leu Arg Gly Lys Ile Gln Gln Ala Glu Ser His His Ser Gly
 65                  70                  75                  80
Ile Phe Ser Leu Pro Val Met Lys Gly Ile Ser Pro Gln Asp Tyr Arg
                 85                  90                  95
Val Tyr His Gln Asn Gly Leu Leu Ala His Asp Pro Tyr Ala Phe Pro
            100                 105                 110
Leu Leu Trp Gly Glu Ile Asp Ser Phe Leu Phe His Glu Gly Thr His
        115                 120                 125
Gln Arg Ile Tyr Glu Arg Met Gly Ala Ile Pro Cys Glu Ile Asp Gly
    130                 135                 140
Val Pro Gly Val Arg Phe Ile Val Trp Ala Pro His Ala Gln Arg Val
145                 150                 155                 160
Ser Val Ile Gly Asp Phe Asn Gly Trp His Gly Leu Val Asn Pro Leu
                165                 170                 175
His Lys Val Ser Asp Gln Gly Val Trp Glu Leu Phe Val Pro Gly Leu
            180                 185                 190
Thr Ala Gly Ala Cys Tyr Lys Trp Glu Met Val Thr Glu Ser Gly Gln
        195                 200                 205
Val Leu Ile Lys Ser Asp Pro Tyr Gly Lys Phe Phe Gly Pro Pro Pro
    210                 215                 220
Arg Ser Val Ser Val Val Ile Asp Asp Ser Tyr Glu Trp Asn Asp Ser
225                 230                 235                 240
Glu Trp Leu Glu Glu Arg Ile Lys Lys Thr Glu Gly Pro Met Asn Leu
                245                 250                 255
Tyr Glu Val His Val Gly Ser Trp Gln Trp Gln Glu Gly Gln Pro Leu
            260                 265                 270
Asn Tyr Lys Glu Leu Ala Asp Gln Leu Ala Leu Tyr Cys Lys Gln Met
        275                 280                 285
His Tyr Thr His Val Glu Leu Leu Pro Val Thr Glu His Pro Leu Asn
    290                 295                 300
```

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Glu Ser Trp Gly Tyr Gln Thr Thr Gly Tyr Tyr Ala Pro Thr Ser Arg
305                 310                 315                 320
Tyr Gly Ser Phe Glu Asp Leu Gln Tyr Phe Ile Asp Thr Met His Gln
                325                 330                 335
His Gly Ile Gly Val Ile Leu Asp Trp Val Pro Gly His Phe Pro Ile
            340                 345                 350
Asp Ser Phe Ala Met Ser Gly Phe Asp Gly Thr Pro Leu Tyr Glu Tyr
        355                 360                 365
Thr Arg Asn Pro Ser Pro Leu His Pro His Trp His Thr Tyr Thr Phe
    370                 375                 380
Asp Tyr Ala Lys Pro Glu Val Cys Asn Phe Leu Leu Gly Ser Ala Leu
385                 390                 395                 400
Phe Trp Ile Asp Lys Met His Val Asp Gly Ile Arg Val Asp Ala Val
                405                 410                 415
Ser Ser Met Leu Tyr Leu Asp Tyr Gly Arg Tyr Ala Gly Glu Trp Val
            420                 425                 430
Pro Asn Arg Tyr Gly Gly Arg Glu Asn Leu Asp Ala Ile Arg Phe Leu
        435                 440                 445
Gln Gln Phe Asn Thr Val Ile His Glu Lys Tyr Pro Gly Val Leu Thr
    450                 455                 460
Phe Ala Glu Glu Ser Thr Thr Phe Pro Lys Ile Thr Val Ser Val Glu
465                 470                 475                 480
Glu Gly Gly Leu Gly Phe Asp Tyr Lys Trp Asn Met Gly Trp Met His
                485                 490                 495
Asp Thr Leu His Tyr Phe Glu Lys Asp Phe Pro Tyr Arg Pro Tyr His
            500                 505                 510
Gln Ser Asp Leu Thr Phe Pro Gln Trp Tyr Ala Phe Ser Glu Arg Phe
        515                 520                 525
Leu Leu Pro Phe Ser His Asp Glu Val Val His Gly Lys Arg Ser Leu
    530                 535                 540
Ile Gly Lys Met Pro Gly Asp Ala Trp Arg Gln Phe Ala Gln Leu Arg
545                 550                 555                 560
Leu Leu Leu Gly Tyr Gln Ile Cys Gln Pro Gly Lys Lys Leu Leu Phe
                565                 570                 575
Met Gly Gly Glu Phe Gly Gln Gly Arg Glu Trp Ser Pro Gly Arg Glu
            580                 585                 590
Leu Asp Trp Glu Leu Leu Asp Ile Ser Tyr His Gln Gly Val His Leu
        595                 600                 605
Cys Ser Gln Glu Leu Asn Ala Leu Tyr Val Gln Ser Pro Gln Leu Trp
    610                 615                 620
Gln Ala Asp His Leu Pro Ser Ser Phe Arg Trp Val Asp Phe Ser Asp
625                 630                 635                 640
Val Arg Asn Gly Val Val Ala Tyr Leu Arg Phe Ala Asp Ala Asp Ala
                645                 650                 655
Lys Lys Ala Leu Leu Cys Val His His Phe Gly Val Gly Tyr Phe Pro
            660                 665                 670
His Tyr Leu Leu Pro Ile Leu Pro Leu Glu Ser Cys Asp Leu Leu Met
        675                 680                 685
Asn Thr Asp Asn Thr Arg Phe Gly Gly Ser Gly Lys Gly Phe Arg Glu
    690                 695                 700
Pro Glu Ile Leu Thr Pro Glu Ile Ala Arg Gln Glu Arg Glu Ala Ala
705                 710                 715                 720
Gly Leu Ile Glu Ala Asp Asp Glu Ser Gly Pro Asp Cys Trp Gly Leu
                725                 730                 735
Asp Ile Glu Leu Pro Pro Ser Ala Thr Leu Ile Phe Ser Val Thr Leu
            740                 745                 750
Gln
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<210>496
<211>179
<212>PRT

<213>Chlamydia trachomatis
<400>496

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His Pro Cys Val His Arg Tyr Ala Asp Glu Ser Leu His Gly Ile Lys
  1               5                  10                  15
Lys Asn Arg Phe Pro Pro Lys Val Lys Gly Arg His Lys Asp His Glu
             20                  25                  30
Pro Ile Asn His Phe Asp Asp Arg Leu Asp Asn Leu Gly Glu Lys Phe
         35                  40                  45
Leu Ser Leu Gln Glu Glu Lys Lys Ser Leu Asn Gly Ala Thr Leu Pro
     50                  55                  60
Val Glu Ser Tyr Leu Ala Thr Gln Gln Lys Arg Ser Leu Pro Gln Gly
 65                  70                  75                  80
Gly Lys Glu Leu Ser Asp Leu Asp Ser Asn Phe Gln Lys Gln Phe Pro
                 85                  90                  95
Lys Asp Leu Val Asp Cys Ser Val Tyr Gln Lys Arg Glu Val Pro Arg
            100                 105                 110
Val Glu Tyr Leu Arg Lys Lys Asp His Asn Ile Phe Cys Ile Tyr Leu
        115                 120                 125
Gln Lys Arg Ser His Arg Tyr Val Val Pro Ala Phe Ile Ser Thr Phe
    130                 135                 140
Ser Lys Arg Phe Phe Ile Leu Gln Glu Ile Ile Leu Pro Cys Ser Ser
145                 150                 155                 160
Thr Arg Lys Arg Asp Glu Tyr Thr Pro Gly Leu Met Ile Ala Ser Ser
                165                 170                 175
Leu Glu Thr
```

<210>497
<211>336
<212>PRT
<213>Chlamydia trachomatis
<400>497

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Tyr Lys Gly Ala Gly Ser Phe Met Ile Lys Ile Ala Gln Ser Phe Lys
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Pro Tyr Ile Met Glu Pro Gly Ala Lys Ile Pro Ile Pro Gly Ser Thr
             20                  25                  30
Leu Tyr Ala Gln Val Phe Pro Ser Leu Trp Arg Ile Phe Ser Ser Ser
         35                  40                  45
His Glu Leu Val Asn Glu Gly Arg Val Pro Ile Gln Gly Pro Leu Gln
     50                  55                  60
Arg Phe Ala Val Phe Gln Asn Leu Asn Arg Gly Gly Val Ala Val Met
 65                  70                  75                  80
Thr Glu Gln Tyr Lys Tyr Tyr Leu Ser Pro Asn Gly Cys Tyr Thr Arg
                 85                  90                  95
Ser Ile Ala Asp Leu Pro Ser Ala Ser Phe Tyr Ser Gly Glu Tyr Val
            100                 105                 110
Ser Phe Gly Val His Lys His Ala Asp Xaa Glu Lys Ile Arg Arg Arg
        115                 120                 125
Lys Asp Leu Lys Glu Ile Leu Pro Phe Leu Phe Arg His Gly Ala Leu
    130                 135                 140
Leu Gln Asn Gln Pro Asn Leu Ser Met Glu Lys Thr Glu Val Ala Leu
145                 150                 155                 160
Leu Leu Asp Thr Leu Asp Ala Ala Ile Ala Glu Pro Asn Lys Glu Arg
                165                 170                 175
Val Phe Ser Leu Leu Glu Arg Phe Val Tyr Ala Gly Leu Ser Lys Thr
            180                 185                 190
Leu Leu Pro Arg Leu Tyr Asp Glu Glu Tyr Gln Gly Ile Val Ser Glu
        195                 200                 205
Asp Pro Arg Pro Gly Asn Glu Ala Val Pro Phe Ser Leu Leu Arg Ala
    210                 215                 220
Ala Ala Leu Ser Met Arg Arg Ile Phe Ile Gln Glu Ser Asp Gly Val
225                 230                 235                 240
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09654.0026.00

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Val Thr Leu Leu Pro Ala Leu Pro Pro Glu Phe Pro Cys Gly Arg Trp
                245                 250                 255
Ile Gly Leu Tyr Phe Glu Asn Ile Gly Glu Ile Ser Phe Glu Trp Ser
            260                 265                 270
Lys Lys Thr Ile Arg Arg Val Ile Leu Lys Ala His Val Ser Arg Glu
        275                 280                 285
Leu Ala Ile Ile Ser Pro Gly Val Tyr Ser Ser Arg Phe Arg Val Glu
    290                 295                 300
Glu Gln Gly Arg Ile Ile Ser Cys Lys Ile Lys Asn Leu Leu Glu Lys
305                 310                 315                 320
Val Glu Ile Lys Ala Gly Thr Thr Tyr Leu Trp Asp Arg Phe Cys Lys
                325                 330                 335
<210>498
<211>267
<212>PRT
<213>Chlamydia trachomatis
<400>498
Leu Ser Gly Gly Asn Thr Leu Ser Ser Ile Leu Lys Met Phe Ile Pro
  1               5                  10                  15
Ile Lys Ile Ala Arg Ala Phe Ile Leu Gln Ile Phe Leu Ile Asn Lys
            20                  25                  30
Met Thr Pro Ser Ala Leu Phe His Lys Arg Leu Ile Glu Gln Phe Thr
        35                  40                  45
Ile Phe Leu Ser Val Asp Arg Gly Ile Ser Pro Leu Ser Val Gln Ala
    50                  55                  60
Tyr Cys Gln Asp Val Leu Leu Phe Leu Gln Arg Ala Ser Ile Glu Ala
65                  70                  75                  80
Thr Asp Arg Ile Asn Gln Glu Ser Val Phe Leu Phe Val Glu Lys Cys
                85                  90                  95
His Lys Ala Lys Glu Ser Glu Thr Thr Leu Ala Arg Arg Leu Ile Ala
            100                 105                 110
Leu Lys Val Phe Phe His Phe Leu Lys Asp Val Lys Met Leu Asp Gln
        115                 120                 125
Gln Pro Phe Ile Glu His Pro Lys Ile Trp Lys Arg Leu Pro Ser Ile
    130                 135                 140
Leu Ser Thr Glu Glu Val Asn Ser Leu Leu Asp Gln Pro Leu Asn Ile
145                 150                 155                 160
Pro Asn Leu Asp Thr His Ile Ala Ser Arg Asp Ala Ala Ile Leu Tyr
                165                 170                 175
Thr Phe Tyr Ala Thr Gly Ile Arg Val Ser Glu Leu Cys Asp Leu Cys
            180                 185                 190
Ile Gly Asp Ile Ser Asp Asp Phe Ile Arg Val Thr Gly Lys Gly Arg
        195                 200                 205
Lys Thr Arg Leu Val Pro Ile Ser Ile Lys Ala Lys Gln Ala Ile Asp
    210                 215                 220
Ala Tyr Leu Ser Ser Phe Arg Asp Glu Leu Gln Lys Lys Ile Pro Leu
225                 230                 235                 240
Lys Asn Met Tyr Phe Cys Leu Ser Glu Gly Lys Asn Ser Ile Val Pro
                245                 250                 255
Val Tyr Gly Asn Ala Leu Leu Phe Met Gln Asn
            260                 265
<210>499
<211>99
<212>PRT
<213>Chlamydia trachomatis
<400>499
Thr Thr Lys Lys Asn Pro Ser Glu Glu His Val Phe Leu Ser Ile Arg
  1               5                  10                  15
Gly Lys Lys Leu Asp Arg Ser Cys Val Trp Lys Arg Ile Thr Phe Tyr
            20                  25                  30
Ala Lys Leu Val Thr Thr Lys Arg Ile Ser Pro His Ser Leu Arg His
```

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          35                  40                  45
Pro Phe Ala Thr His Leu Leu Asn Asn His Ala Asp Leu Arg Ile Ile
     50                  55                  60
Gln Glu Met Leu Gly His Ser Arg Ile Ser Ser Thr Glu Ile Tyr Thr
 65                  70                  75                  80
His Val Ala Ser Glu Ser Leu Ile Glu Lys Phe His Thr Tyr His Pro
                85                  90                  95
Arg Asp Ile
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<210>500
<211>177
<212>PRT
<213>Chlamydia trachomatis

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<400>500
Ser Lys Asn Ser Thr Pro Thr Ile Leu Glu Ile Ser Lys Ile Cys Asp
  1               5                  10                  15
Glu Val Phe Ser Ser Phe Ser Leu Glu Gln Val Ser Tyr Lys Gly Thr
            20                  25                  30
Arg Ala Ser Leu Glu Asn Ser Leu Val Tyr Pro Arg Leu His Leu Tyr
        35                  40                  45
Trp Asp Asn Asn Ser His Thr Gly Arg Asp Ser Lys Asn Tyr Lys Glu
     50                  55                  60
Ser Ala Pro Leu Pro Val Leu Gln Ile Leu Leu Leu Gln Gln Glu Arg
 65                  70                  75                  80
Phe Pro Lys Val Glu Leu Glu Ile Pro Asn Thr Pro His Gln Pro Gln
                85                  90                  95
Lys Gln Gln Asn Ser Thr Lys Pro Ser Pro Lys Gly Leu Thr Ala Val
            100                 105                 110
Ser Phe Thr Phe Pro His Leu Phe Ser Asp Ala Ala Glu Lys Thr Thr
        115                 120                 125
Asp Ser Gly Tyr Pro Asn Lys His Thr Arg Tyr Leu Asn Lys Lys Ile
    130                 135                 140
Phe Arg Arg Lys Ala Met Pro Arg Ile Gly Leu Glu Pro Thr Cys Arg
145                 150                 155                 160
Glu Ala Leu Asp Pro Lys Ser Ser Val Ser Thr Asn Phe Thr Thr Trp
                165                 170                 175
Ala
```

<210>501
<211>101
<212>PRT
<213>Chlamydia trachomatis

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<400>501
Met Lys Gln Leu Ser Ile Leu Leu Gly Met Val Ser Leu Ser Ser Ala
  1               5                  10                  15
Val Phe Gly Ala Asp Ala Val Tyr Ser Gly Ser Leu Val Gln Pro Ser
            20                  25                  30
Glu Ser Val Leu Val Ala Gly Val Glu Phe Glu Glu Gln Glu Gly Glu
        35                  40                  45
Arg Ile Pro Tyr Ser Phe Tyr Tyr Pro Tyr Gln Tyr Asp Tyr Tyr Tyr
     50                  55                  60
Pro Asn Thr Gly Val Asp Glu Asp Thr Pro Glu Ser Phe Gln Glu Lys
 65                  70                  75                  80
His Glu Cys Pro Cys Lys Lys Pro Val Pro Glu Lys Lys Lys Lys Lys
                85                  90                  95
Pro Arg Arg Arg Ser
            100
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<210>502
<211>316
<212>PRT
<213>Chlamydia trachomatis

<400>502
Val Pro Ser Phe Leu Lys Gly Leu Asp Thr Leu Thr Ser Val Thr Met
1 5 10 15
Asp Thr Pro Thr Pro Leu Ser Ser Val Pro Thr Asn Ala Ser Leu Lys
20 25 30
Gly Glu Pro Gly Ser Ser Ser Gln Phe Ser Ser Ala Glu Lys Gly Val
35 40 45
Leu Lys Thr Ser Ile Gly Asp Val Val Leu Ser Gln Ser Ile Glu Asp
50 55 60
Gly Gly Asn Glu Thr Gln Ile Ser Leu Val Gly Val Val Asn Ile Asn
65 70 75 80
Met Ala Gln Glu Glu Leu Pro Ala Leu Val Ser Pro Arg Thr Phe Ile
85 90 95
Phe Leu Pro Pro Glu Thr Val Glu Leu Glu Ile Gln Ile Ala Glu Met
100 105 110
Phe Gln Ala Leu Glu Glu Thr Pro Ser Ser Asp Ser Arg Ser Leu Gln
115 120 125
Gln Lys Glu Thr Ser Ala Gln Thr Pro Pro Ala Pro Ser Gly Lys Val
130 135 140
Ser Ile Phe Ser Leu Gln Ala Gln Gly Ser Ser Gln Thr Arg Ser Leu
145 150 155 160
Pro Ser Ser Gln Glu Ser Leu Ser Pro Gln Gln Pro Ala Arg Ala Ile
165 170 175
Gln Gly Leu Asn Thr Pro Phe Ser Pro Ala Ala Arg Cys Thr Ile Arg
180 185 190
Ala Val Pro Leu Ser Ile Val Pro His Arg Arg Ala Asn Pro Lys Pro
195 200 205
Ser Gln Ser Val Leu Ile Ile Ala Leu Val Leu Thr Arg Gln Ala Ile
210 215 220
Gln Gln Glu Arg Leu Asn Phe Leu Pro Arg Asn Gly Asn Phe Leu Leu
225 230 235 240
Lys Gln Leu Lys Pro Ala Gln Gln Glu Glu Lys Lys Glu Thr Val Asn
245 250 255
Lys Lys Asp Ile Leu Ile Lys Asn Arg Ile Val Ile Ile Leu Thr Lys
260 265 270
Arg Lys Ile Ser Arg Met Ile Cys Lys Cys Leu Leu Leu Lys Asp Pro
275 280 285
Leu Ile Arg Lys Met Lys Ile Leu Arg Lys Tyr Phe Leu Ser Leu Thr
290 295 300
Leu Leu Ile Met Arg Pro Leu Ile Leu Arg Pro Ile
305 310 315
<210>503
<211>294
<212>PRT
<213>Chlamydia trachomatis
<400>503
Ser Lys Ser Lys Thr Phe Ser Lys Cys Ser His His Ser Ser Arg Thr
1 5 10 15
Tyr Gln Thr Gly His Ser Thr Gly Thr Ala Gln Leu Ser Ser Gln Glu
20 25 30
Trp Glu Phe Ser Ser Gln Thr Val Lys Thr Cys Ser Thr Gly Arg Glu
35 40 45
Lys Arg Asp Gly Gln Gln Glu Arg His Ser Asp Gln Glu Gln Asn Ser
50 55 60
Asp His Ser Tyr Gln Glu Glu Asp Leu Ser Asp Asp Met Gln Val Ser
65 70 75 80
Ser Ser Lys Arg Ser Ser His Pro Glu Asp Glu Asn Thr Glu Glu Val
85 90 95
Phe Ser Val Ser His Phe Ala Tyr His Ala Ala Pro His Pro Ala Ser
100 105 110
Asn Leu Asp Gln Glu Ser Asn Gln Ser Thr Phe Gln Lys Arg Pro Pro

```
        115                 120                 125
Ser Pro Met Ser Leu Phe Ser Ser Gln Asn Ala Thr Glu Glu Ala Pro
    130                 135                 140
Lys Glu Ala Arg Val Glu Asn Val Phe Leu Arg Phe Met Arg Leu Met
145                 150                 155                 160
Ala Arg Ile Leu Gly Gln Ala Glu Ala Glu Ala His Glu Leu Tyr Leu
                165                 170                 175
Arg Val Lys Glu Arg Thr Asp Ser Val Asp Ala Leu Thr Leu Leu Leu
            180                 185                 190
Ser Lys Ile Asn Asn Glu Lys Gly Ala Ile Asp Trp Asn Gln Asp Glu
        195                 200                 205
Glu Met Arg Ala Leu Val Asp Gln Ala Lys Lys Leu Gly Val Pro Ile
    210                 215                 220
Gly Asp Ser Tyr Asp Trp Ser Glu Glu Gly Lys Lys Leu Leu Lys Glu
225                 230                 235                 240
Asn Ile Gln Met Arg Lys Glu Asn Met Glu Lys Ile Thr Gln Leu Glu
                245                 250                 255
Arg Thr Asp Met Gln Arg His Leu Gln Glu Val Ser Gln Cys His Gln
            260                 265                 270
Ala Arg Ser Asn Val Leu Lys Leu Leu Lys Glu Leu Met Asp Thr Phe
        275                 280                 285
Ile Tyr Asn Met Arg Pro
    290
<210>504
<211>271
<212>PRT
<213>Chlamydia trachomatis
<400>504
Ile Thr Lys Asp Ser Tyr Tyr Tyr Val Ile Leu Val Cys Ser Arg Thr
  1                 5                  10                  15
Asp Val Ala Leu Ser Gln Thr Leu Asp Leu Pro Asp Ala Ser Leu Ala
             20                  25                  30
Val Gln Thr Glu Lys Phe Pro Tyr Ser Cys Ser Ile Ser Lys Glu Ser
         35                  40                  45
Ala Pro Ser Cys Ile Arg Lys Ile Phe Ala His Leu Ala Ser Gln Lys
     50                  55                  60
Glu Ser Ala Pro Leu Ser Phe Ser Arg Leu Gln Pro Thr Thr Pro Lys
 65                  70                  75                  80
Glu Arg Ile Leu Phe Phe Gly Ser Ser Pro Ser Ser Gln Leu Ser Ser
                 85                  90                  95
Thr Val Arg Thr Thr Thr Ser Ser Pro Trp Asn Leu Phe Ser Asn Ser
            100                 105                 110
Gln Ala Arg Asn Ser Thr Arg Lys Leu Ser Glu Lys Leu His Leu Ser
        115                 120                 125
Ser Glu Leu Ser Ala Arg Asp Ser Thr Lys Pro Ser Ser Ser Glu Pro
    130                 135                 140
Val Lys Pro Ser Glu Asn Leu Leu His Thr Pro Glu His His Lys Glu
145                 150                 155                 160
Ser Phe Ser Ser Leu Lys Lys Asp Asn Leu Ser Pro Ile Met Glu Glu
                165                 170                 175
Ile Asp Ser Phe Ser Ala Glu Thr Glu Ser Leu Glu Glu Arg Leu Val
            180                 185                 190
Thr Gln Lys Lys Glu Glu Thr Val Ala Gln Glu Gln Lys His Pro Leu
        195                 200                 205
Leu Arg Thr Ser Thr Pro Pro Ser Lys Ala Ser Gly Glu Ser Gln Asp
    210                 215                 220
Ser Ser Glu His Ser Ser Lys Glu Asp Pro Tyr Ser Gln Gln Pro Ser
225                 230                 235                 240
His Lys Ile Gln Arg Arg Gly Thr Ser Gln Lys Ser Cys Ser Tyr His
                245                 250                 255
His Thr Thr Tyr Cys Arg Asp Leu Leu Phe Lys Leu Pro Ser His
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09/744,510 - 01/29/2001

260 265 270

<210>505
<211>320
<212>PRT
<213>Chlamydia trachomatis
<400>505

His Lys Lys Lys Lys Lys Pro Leu His Lys Asn Lys Asn Ile Leu Tyr
1 5 10 15
Leu Glu Pro Pro Pro Leu Leu Pro Lys His Gln Glu Lys Val Lys Thr
20 25 30
Arg Pro Ser Thr Leu Arg Lys Lys Thr Leu Ile Leu Ser Asn Leu Leu
35 40 45
Thr Lys Tyr Lys Glu Glu Glu Arg Ala Lys Arg Val Val Pro Ile Ile
50 55 60
Thr Pro Pro Thr Val Gly Ile Phe Ser Leu Ser Tyr Leu Leu Thr Lys
65 70 75 80
Gln Gly Ile Leu Ala Asp Phe Ser Ala Tyr Ser Ala Tyr Lys Asp Asn
85 90 95
Leu Glu Thr Thr Gln Gln Glu Leu Thr Met Leu His Gln Glu Arg Ile
100 105 110
Glu Gln Val Gln Lys Ile Val Asp Lys Ser Lys Thr Met Arg Phe Trp
115 120 125
Asp Ser Leu Ala Ser Ile Val Ala Thr Ile Ile Pro Trp Ile Glu Met
130 135 140
Gly Val Ala Val Thr Ile Ile Ala Leu Gly Gly Gly Ile Leu Ser Trp
145 150 155 160
Cys Ser Leu Phe Ala Ala Leu Ile Met Ile Val Ile Ser Leu Leu Glu
165 170 175
Ala Phe Asp Gly Trp Arg Ala Ile Ala Lys His Leu Pro Gly Asn Asp
180 185 190
Leu Glu Lys Lys Met Arg Tyr Leu Gly Tyr Val Lys Leu Ala Leu Thr
195 200 205
Val Phe Ser Cys Leu Leu Ser Leu Ser Ala Leu Tyr Val Ala Lys Leu
210 215 220
Gly Met Ser Pro Leu Leu Glu Gly Val Val Lys Ser Ile Ala Pro Ala
225 230 235 240
Leu Ser Gly Met Leu Gly Leu Thr Gln Gly Val Ala Leu Tyr Leu Gln
245 250 255
Ser Ser Ser Gln Lys Ile Arg Ala Arg Cys Thr Gln Ile Asp Ala Arg
260 265 270
Ile Glu Leu Ile Asn Trp Glu Arg Asp Glu Tyr Phe Leu Arg Ala Glu
275 280 285
Gln Leu Leu Asp Ser Met Gln Thr Ser Phe Glu Gln Leu Thr Glu Thr
290 295 300
Leu Gln Leu Gln Arg Glu Ile Asp Gln Thr Phe Thr Asp Ala Leu Arg
305 310 315 320

<210>506
<211>506
<212>PRT
<213>Chlamydia trachomatis
<400>506

Pro Asn Val Tyr Arg Arg Leu Thr Ile Ala Ile Leu Pro Met Thr Ile
1 5 10 15
Thr Val Pro Gln Glu Thr Leu Pro Ser Leu Gln Thr Ile Ala Thr Gly
20 25 30
Glu Gln Thr Glu Thr Ser Cys Glu Glu Ala Ser Ala Leu Ser Asn Glu
35 40 45
Ile Gln Leu Leu Glu Pro Gly Gln Ala Ala Ile Leu Arg Ser Leu Ser
50 55 60
Asp Leu Cys Leu Ser Val Ile Glu Gln Thr Glu Lys Thr Leu Pro His
65 70 75 80

Ser Lys His Ser Pro Ser Phe Arg Glu Ser Cys Pro Leu Lys Tyr Leu
85 90 95
Ser Gln Gln Thr Ser Ala Ser Ser Arg Thr Gln Glu Ser Ala Thr Ala
100 105 110
Glu Gln Gln Ser Leu Thr Pro Thr Pro Thr Pro Gln Lys Thr Pro Thr
115 120 125
Gln Thr Leu His Asn Lys Pro Ser Thr Pro Ile Ser His Lys Ser Ser
130 135 140
Val Gln Gly Arg Ile Gln Thr Ser Pro Gln His Ser Thr Pro Leu Arg
145 150 155 160
Ser Ile Pro Val Ile Ile Ser Leu Pro Asn Thr Gln Gln Ala Leu Thr
165 170 175
Asp Arg Glu Pro Ile Gln Asn Ser Asn Cys Ser Pro Thr Leu Ser Val
180 185 190
Thr Ile Phe Asn Lys Glu Ser Ser Ser Ser Ser Lys Lys Asp Ser Ala
195 200 205
Ala Ser Arg Glu Gln Ser Ser Ser His Ser Ser Ser Leu Gln Lys Asn
210 215 220
Leu Ser Ser Pro Arg Ala Ala Leu Leu Ser Pro Met Ala Leu Phe Glu
225 230 235 240
Thr Thr Ala Gln Lys Glu Thr Leu Ala Arg Glu Gly Leu Leu His Glu
245 250 255
Arg Glu Asp Leu Ser Gln Glu Gly Asp Arg Asp His His Gln Ser Asp
260 265 270
Gln Gln Gln Glu Glu Lys Glu Asp Leu Ala Ile Ser Ala Ser Phe Leu
275 280 285
Ser His Ser Lys Lys Arg Arg Glu His His Phe Asp Pro Glu Tyr Leu
290 295 300
Pro Glu Glu Ile Arg Glu Phe Ala Leu Ser Glu Ala Gln Leu Ser Gln
305 310 315 320
Leu Leu His Ile Arg Leu Asn His Leu Asp Ile Leu Arg Ile Cys Ala
325 330 335
Glu Ile Met Lys Leu Met Leu Asn Ser Arg Glu Gln Asp Leu Leu Glu
340 345 350
Arg Arg Ser Thr Arg Thr His Phe Met Gln Glu Ala Lys Lys Ile Ala
355 360 365
Asp Ser Phe Ala Lys Gln Ala Arg Ile Thr Lys Trp Leu Gly Ile Ala
370 375 380
Thr Ala Thr Leu Gly Ile Phe Gly Gly Ile Ser Pro Ile Ile Gly Glu
385 390 395 400
Val Gly Gly Glu Gly Leu Leu Asn Val Ile Arg Lys Ala Thr Gly Gly
405 410 415
Trp Gln Gln Ala Ser Ser Lys Thr Phe Phe Glu Gly Trp Gly Lys Cys
420 425 430
Val Leu Ser Leu Ser Glu Leu Ala Lys Val Ser Ser Thr Val Tyr Asp
435 440 445
Leu Arg Pro Lys Pro Val Arg Thr Ile Ala Glu Ser Tyr Lys Glu Leu
450 455 460
Phe Arg Leu Glu His Asp Glu Met Leu Arg Ser Ile Glu Glu Leu Lys
465 470 475 480
Asp His Gly Arg Asn Met Asp Ser Phe Leu Leu Gln Ile Leu Gln Thr
485 490 495
Gln His Asp Ala Val Arg Ser Leu Tyr Gln
500 505

<210>507
<211>307
<212>PRT
<213>Chlamydia trachomatis
<400>507
Met Arg Lys Ile Ile Leu Cys Ser Pro Arg Gly Phe Cys Ala Gly Val
1 5 10 15

09/10/2004 15:40:00

Ile Arg Ala Ile Gln Thr Val Glu Val Ala Leu Glu Lys Trp Gly Arg
20 25 30
Pro Ile Tyr Val Lys His Glu Ile Val His Asn Arg His Val Val Asp
35 40 45
Lys Leu Arg Glu Lys Gly Ala Ile Phe Ile Glu Asp Leu Gln Glu Val
50 55 60
Pro Arg Asn Ser Arg Val Ile Phe Ser Ala His Gly Val Pro Pro Ser
65 70 75 80
Leu Arg Glu Glu Ala Thr Glu Arg Gly Leu Ile Ala Ile Asp Ala Thr
85 90 95
Cys Gly Leu Val Thr Lys Val His Ser Ala Val Lys Met Tyr Ala Lys
100 105 110
Lys Gly Tyr His Ile Ile Leu Ile Gly Lys Arg Lys His Val Glu Ile
115 120 125
Ile Gly Ile Arg Gly Glu Ala Pro Asp Gln Ile Thr Val Val Glu Asn
130 135 140
Ile Ala Glu Val Glu Ala Leu Pro Phe Ser Ala Gln Asp Pro Leu Phe
145 150 155 160
Tyr Val Thr Gln Thr Thr Leu Ser Met Asp Asp Ala Ala Asp Ile Val
165 170 175
Ala Ala Leu Lys Ala Arg Tyr Pro Arg Ile Phe Thr Leu Pro Ser Ser
180 185 190
Ser Ile Cys Tyr Ala Thr Gln Asn Arg Gln Gly Ala Leu Arg Asn Ile
195 200 205
Leu Pro Gln Val Asp Phe Val Tyr Val Ile Gly Asp Arg Gln Ser Ser
210 215 220
Asn Ser Asn Arg Leu Arg Glu Val Ala Glu Arg Arg Gly Val Thr Ala
225 230 235 240
Arg Leu Val Asn His Pro Asp Glu Val Thr Glu Glu Ile Leu Gln Tyr
245 250 255
Ser Gly Asn Ile Gly Ile Thr Ala Gly Ala Ser Thr Pro Glu Asp Val
260 265 270
Val Gln Ala Cys Leu Met Lys Leu Gln Glu Leu Ile Pro Asp Leu Ser
275 280 285
Ile Glu Met Asp Leu Phe Val Glu Glu Asp Thr Val Phe Gln Leu Pro
290 295 300
Lys Glu Leu
305

<210>508
<211>352
<212>PRT
<213>Chlamydia trachomatis
<400>508
Phe Ala Ile Leu Leu Ser Asn Gly Ser Ala Phe Leu Gly Arg Ala Ser
1 5 10 15
Gln Ser Leu Cys Asn Glu Trp Phe Glu Lys Arg Val Gln Tyr Trp Glu
20 25 30
Tyr Asp Gly Phe Leu Pro Val Ile Gly Pro Val Ile Trp Glu Ser Glu
35 40 45
Gly Leu Phe Arg Ala Tyr Ile Ser Ser Val Thr Asp Gly Asp Gly Lys
50 55 60
Ser His Lys Val Gly Phe Leu Arg Ile Pro Thr Tyr Ser Trp Gln Asp
65 70 75 80
Met Glu Asp Phe Asp Pro Ser Gly Pro Pro Pro Trp Glu Glu Phe Ala
85 90 95
Lys Ile Ile Gln Val Phe Ser Ser Asn Thr Glu Ala Leu Ile Ile Asp
100 105 110
Gln Thr Asn Asn Pro Gly Gly Ser Val Leu Tyr Leu Tyr Ala Leu Leu
115 120 125
Ser Met Leu Thr Asp Arg Pro Leu Glu Leu Pro Lys His Arg Met Ile
130 135 140

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Leu Thr Gln Asp Glu Val Val Asp Ala Leu Asp Trp Leu Thr Leu Leu
145                 150                 155                 160
Glu Asn Val Asp Thr Asn Val Glu Ser Arg Leu Ala Leu Gly Asp Asn
                165                 170                 175
Met Glu Gly Tyr Thr Val Asp Leu Gln Val Ala Glu Tyr Leu Lys Ser
            180                 185                 190
Phe Gly Arg Gln Val Leu Asn Cys Trp Ser Lys Gly Asp Ile Glu Leu
        195                 200                 205
Ser Thr Pro Ile Pro Leu Phe Gly Phe Glu Lys Ile His Pro His Pro
    210                 215                 220
Arg Val Gln Tyr Ser Lys Pro Ile Cys Val Leu Ile Asn Glu Gln Asp
225                 230                 235                 240
Phe Ser Cys Ala Asp Phe Phe Pro Val Val Leu Lys Asp Asn Asp Arg
                245                 250                 255
Ala Leu Ile Val Gly Thr Arg Thr Ala Gly Ala Gly Gly Phe Val Phe
            260                 265                 270
Asn Val Gln Phe Pro Asn Arg Thr Gly Ile Lys Thr Cys Ser Leu Thr
        275                 280                 285
Gly Ser Leu Ala Val Arg Glu His Gly Ala Phe Ile Glu Asn Ile Gly
    290                 295                 300
Val Glu Pro His Ile Asp Leu Pro Phe Thr Ala Asn Asp Ile Arg Tyr
305                 310                 315                 320
Lys Gly Tyr Ser Glu Tyr Leu Asp Lys Val Lys Lys Leu Val Cys Gln
                325                 330                 335
Leu Ile Asn Asn Asp Gly Thr Ile Ile Leu Ala Glu Asp Gly Ser Phe
            340                 345                 350
<210>509
<211>328
<212>PRT
<213>Chlamydia trachomatis
<400>509
Lys Gly Ser Leu Pro Ile Leu Gly Pro Phe Leu Asn Gly Lys Met Gly
  1                 5                  10                  15
Phe Trp Arg Thr Ser Ile Met Lys Met Asn Arg Ile Trp Leu Leu Leu
             20                  25                  30
Leu Thr Phe Ser Ser Ala Ile His Ser Pro Val Arg Gly Glu Ser Leu
         35                  40                  45
Val Cys Lys Asn Ala Leu Gln Asp Leu Ser Phe Leu Glu His Leu Leu
     50                  55                  60
Gln Val Lys Tyr Ala Pro Lys Thr Trp Lys Glu Gln Tyr Leu Gly Trp
 65                  70                  75                  80
Asp Leu Val Gln Ser Ser Val Ser Ala Gln Gln Lys Leu Arg Thr Gln
                85                  90                  95
Glu Asn Pro Ser Thr Ser Phe Cys Gln Gln Val Leu Ala Asp Phe Ile
            100                 105                 110
Gly Gly Leu Asn Asp Phe His Ala Gly Val Thr Phe Phe Ala Ile Glu
        115                 120                 125
Ser Ala Tyr Leu Pro Tyr Thr Val Gln Lys Ser Ser Asp Gly Arg Phe
    130                 135                 140
Tyr Phe Val Asp Ile Met Thr Phe Ser Ser Glu Ile Arg Val Gly Asp
145                 150                 155                 160
Glu Leu Leu Glu Val Asp Gly Ala Pro Val Gln Asp Val Leu Ala Thr
                165                 170                 175
Leu Tyr Gly Ser Asn His Lys Gly Thr Ala Ala Glu Glu Ser Ala Ala
            180                 185                 190
Leu Arg Thr Leu Phe Ser Arg Met Ala Ser Leu Gly His Lys Val Pro
        195                 200                 205
Ser Gly Arg Thr Thr Leu Lys Ile Arg Arg Pro Phe Gly Thr Thr Arg
    210                 215                 220
Glu Val Arg Val Lys Trp Arg Tyr Val Pro Glu Gly Val Gly Asp Leu
225                 230                 235                 240
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Ala Thr Ile Ala Pro Ser Ile Arg Ala Pro Gln Leu Gln Lys Ser Met
                245                 250                 255
Arg Ser Phe Phe Pro Lys Lys Asp Asp Ala Phe His Arg Ser Ser Ser
            260                 265                 270
Leu Phe Tyr Ser Pro Met Val Pro His Phe Trp Ala Glu Leu Arg Asn
        275                 280                 285
His Tyr Ala Thr Ser Gly Leu Lys Ser Gly Tyr Asn Ile Gly Ser Thr
    290                 295                 300
Met Gly Phe Ser Leu Ser Leu Gly Leu Leu Tyr Gly Ser Arg Arg Val
305                 310                 315                 320
Phe Ser Ala Leu Ile Phe Leu Arg
                325
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<210>510
<211>427
<212>PRT
<213>Chlamydia trachomatis
<400>510

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Val Leu Val Glu Val Phe Met Leu Lys Phe Gln Leu Cys Leu Leu Phe
  1               5                  10                  15
Leu Phe Gly Tyr Leu Ala Ile Val Phe Glu His Ile Val Arg Val Asn
            20                  25                  30
Lys Ser Ala Val Ser Leu Ala Met Gly Gly Leu Met Trp Leu Val Cys
        35                  40                  45
Phe Ser His Ile Pro His Ile Asp His Val Met Met Val Glu Glu Ile
    50                  55                  60
Ala Asp Met Ala Gln Val Ile Phe Phe Leu Phe Ala Ala Met Ala Ile
65                  70                  75                  80
Val Glu Leu Ile Asp Ala His Arg Gly Phe Ser Ile Val Val Arg Cys
                85                  90                  95
Cys Asn Val Glu Ser Arg Ser Val Leu Leu Trp Val Leu Leu Ile Leu
            100                 105                 110
Ser Phe Phe Leu Ser Ala Ala Leu Asp Asn Leu Thr Ser Ile Ile Ile
        115                 120                 125
Ile Ile Ser Ile Leu Lys Arg Leu Val Lys Ala Arg Glu Asp Arg Leu
    130                 135                 140
Leu Leu Gly Ala Leu Cys Val Ile Gly Val Asn Ala Gly Gly Ala Trp
145                 150                 155                 160
Thr Pro Leu Gly Asp Val Thr Thr Thr Met Leu Trp Ile Asn Asp Lys
                165                 170                 175
Ile Ser Thr Ser Gly Ile Ile Thr Thr Leu Phe Leu Pro Ser Val Val
            180                 185                 190
Cys Val Val Ile Ala Gly Ile Cys Gly Gln Leu Leu Leu Lys Lys Arg
        195                 200                 205
Arg Cys Ser Gly Leu Ser Glu Asp Leu Asp Arg Glu Pro Ala Leu Pro
    210                 215                 220
Lys Ser Asn Leu Ile Ala Cys Val Gly Phe Gly Ser Leu Leu Met Val
225                 230                 235                 240
Pro Met Trp Lys Ala Val Leu Gly Val Pro Pro Phe Met Gly Ala Leu
                245                 250                 255
Leu Gly Leu Gly Leu Val Trp Leu Val Ser Asp Trp Ile His Ser Pro
            260                 265                 270
His Gly Glu Gly Arg Asn His Leu Arg Met Pro His Ile Leu Thr Arg
        275                 280                 285
Ile Asp Ile Ser Ser Val Thr Phe Phe Ile Gly Ile Leu Leu Ala Val
    290                 295                 300
Asn Ala Leu Thr Tyr Ser His Val Leu Arg Asp Leu Ser Val Ser Met
305                 310                 315                 320
Asp Ala Leu Phe Ser Arg Asn Thr Leu Ala Val Leu Leu Gly Leu Val
                325                 330                 335
Ser Ser Val Leu Asp Asn Val Pro Leu Val Ala Ala Thr Ile Gly Met
            340                 345                 350
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Tyr Asp Leu Pro Met Asn Asp Pro Leu Trp Lys Leu Ile Ala Tyr Thr
355 360 365
Ala Gly Thr Gly Gly Ser Ile Leu Ile Ile Gly Ser Ala Ala Gly Val
370 375 380
Ala Tyr Met Gly Met Glu Lys Val Ser Phe Gly Trp Tyr Val Lys His
385 390 395 400
Ala Ser Trp Ile Ala Leu Ala Ser Tyr Phe Gly Gly Leu Ala Val Tyr
405 410 415
Phe Leu Met Glu Asn Cys Val Asn Leu Phe Val
420 425

<210>511
<211>416
<212>PRT
<213>Chlamydia trachomatis
<400>511
Leu Val Lys Val Ser Leu Ser Phe Lys His Leu Ile Pro Lys Leu Val
1 5 10 15
Thr Cys Leu Lys Glu Gly Tyr Ser Phe Asn Thr Leu Lys Lys Asp Phe
20 25 30
Thr Ala Gly Ile Thr Ala Gly Ile Leu Ala Phe Pro Leu Ala Ile Ala
35 40 45
Ile Ala Ile Gly Ile Gly Val Ser Pro Leu Gln Gly Leu Leu Ala Ser
50 55 60
Ile Ile Gly Gly Phe Leu Ala Ser Ala Leu Gly Gly Ser Arg Val Leu
65 70 75 80
Ile Ser Gly Pro Thr Ser Ser Phe Ile Ser Ile Leu Tyr Cys Ile Gly
85 90 95
Val Lys Tyr Gly Glu Asp Gly Leu Phe Thr Ile Thr Leu Met Ala Gly
100 105 110
Ile Phe Leu Val Ile Phe Gly Leu Ala Gly Leu Gly Thr Phe Ile Lys
115 120 125
Tyr Met Pro Tyr Pro Val Val Thr Gly Leu Thr Thr Gly Ile Ala Val
130 135 140
Ile Ile Phe Ser Ser Gln Ile Arg Asp Phe Leu Gly Leu Gln Met Gly
145 150 155 160
Asp Gly Val Pro Leu Asp Phe Ile Gly Lys Trp Ala Ala Tyr Trp Asp
165 170 175
Tyr Leu Trp Thr Trp Asp Ser Lys Thr Phe Ala Val Gly Leu Phe Thr
180 185 190
Leu Leu Leu Met Ile Tyr Phe Arg Asn Tyr Lys Pro Arg Tyr Pro Gly
195 200 205
Val Met Ile Ser Ile Ile Ile Ala Ser Thr Leu Val Trp Ile Leu Lys
210 215 220
Ile Asp Ile Pro Thr Ile Gly Ser Arg Tyr Gly Thr Leu Pro Ser Ser
225 230 235 240
Leu Pro Gly Pro Val Phe Pro His Ile Ser Ile Thr Lys Met Leu Gln
245 250 255
Leu Met Pro Asp Ala Leu Thr Ile Ser Val Leu Ser Gly Ile Glu Thr
260 265 270
Leu Leu Ala Ala Val Val Ala Asp Gly Met Thr Gly Trp Arg His Gln
275 280 285
Ser Asn Cys Gln Leu Ile Gly Gln Gly Ile Ala Asn Ile Gly Thr Ser
290 295 300
Leu Phe Ala Gly Met Pro Val Thr Gly Ser Leu Ser Arg Thr Thr Ala
305 310 315 320
Ser Ile Lys Cys Gly Ala Ser Thr Pro Ile Ala Gly Ile Ile His Ala
325 330 335
Ile Cys Leu Ser Phe Ile Leu Leu Leu Leu Ala Pro Leu Thr Ile Lys
340 345 350
Ile Pro Leu Thr Cys Leu Ala Ala Val Leu Ile Leu Ile Ala Trp Asn
355 360 365

09054-0020P1

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Met Ser Glu Ile His His Phe Ile His Leu Phe Thr Ala Pro Lys Lys
    370                 375                 380
Asp Val Leu Val Leu Leu Thr Val Phe Ile Leu Thr Val Met Thr Thr
385                 390                 395                 400
Ile Thr Ser Ala Val Gln Val Gly Met Ile Leu Gln Pro Phe Tyr Ser
                405                 410                 415
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<212>PRT
<213>Chlamydia trachomatis
<400>512
Ala Ile Tyr Leu Met Leu Ser Pro Gln Gln Asn Ile Leu Met Asn Pro
  1               5                  10                  15
Asn Asn Leu Lys Met Thr Cys Tyr Phe Ser Lys Asn Glu Val Pro Pro
            20                  25                  30
Phe Thr Glu Ile Tyr Glu Ile Asn Gly Pro Phe Phe Phe Gly Ile Ala
        35                  40                  45
Asp Arg Leu Lys Asn Leu Leu Asn Glu Ile Glu Lys Pro Pro Lys Ile
    50                  55                  60
Phe Ile Leu Cys Met Thr Arg Val Pro Thr Ile Asp Ala Ser Ala Met
65                  70                  75                  80
His Ala Leu Glu Glu Phe Phe Leu Glu Cys Asp Arg Gln Gly Thr Leu
                85                  90                  95
Leu Leu Leu Ala Gly Val Lys Lys Thr Pro Leu Ser Asp Leu Arg Arg
            100                 105                 110
Tyr His Val Asp Glu Leu Ile Gly Val Asp His Ile Phe Ser Asn Ile
        115                 120                 125
Lys Gly Ala Leu Leu Phe Ala Lys Ala Leu Ile Lys Leu Glu Ser Lys
    130                 135                 140
Ser Ser Gln
145
<210>513
<211>252
<212>PRT
<213>Chlamydia trachomatis
<400>513
Ser Phe Arg Val Cys Ser Arg Tyr Lys Asn Trp Lys Asn Ala Phe Asp
  1               5                  10                  15
Gly Cys Ser Ser Asn Asp Ser Trp Ala Lys Glu Phe Ser Gly Tyr Ser
            20                  25                  30
Cys Gln Leu His Asn Cys Leu Glu Arg Ile Gly Phe Ser Leu Thr His
        35                  40                  45
Leu Tyr Glu Leu Ala Ile Gly Gly Thr Ala Ile Gly Thr Gly Leu Asn
    50                  55                  60
Val Pro Glu Gly Phe Val Glu Lys Val Ile Gln Tyr Leu Arg Arg Glu
65                  70                  75                  80
Thr Gly Glu Pro Phe Val Pro Ala Ser Asn Tyr Phe Ala Ala Leu Ser
                85                  90                  95
Asn His Asp Ala Leu Val Gln Ala His Gly Ser Leu Thr Val Leu Ala
            100                 105                 110
Cys Ala Leu Val Lys Ile Ala Thr Asp Leu Ser Xaa Leu Gly Ser Gly
        115                 120                 125
Pro Arg Cys Gly Leu Gly Glu Ile Phe Phe Pro Glu Asn Glu Pro Gly
    130                 135                 140
Ser Ser Ile Met Pro Gly Lys Ile Asn Pro Thr Gln Ser Glu Ala Leu
145                 150                 155                 160
Gln Met Val Cys Ser Gln Val Ile Gly Asn Asn Gln Ser Ile Ile Phe
                165                 170                 175
Ser Gly Thr Lys Gly Asn Phe Glu Leu Asn Val Met Lys Pro Val Ile
            180                 185                 190
Ile Tyr Asp Phe Leu Gln Ser Val Asn Leu Leu Ala Gly Ala Met Arg
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Sequence Listing

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        195                 200                 205
Ser Phe Ala Asp Cys Phe Val Cys Gly Leu Lys Val Asn Lys Gly Gln
    210                 215                 220
Leu Gln Gln Asn Val Glu Arg Ser Leu Met Leu Val Thr Ala Leu Val
225                 230                 235                 240
Pro Phe Trp Gly Thr Ile Asn Val Gln Arg Leu Leu
                245                 250
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<211>100
<212>PRT
<213>Chlamydia trachomatis
<400>514
Thr Ile Met Gln Leu Thr Thr Ile Pro Arg Lys Leu Phe Cys Pro Arg
  1               5                  10                  15
Val Ile Gly Thr Thr Ser Ile Lys Cys Val Leu Pro Ile Phe Ile Ser
             20                  25                  30
Arg Ala Asn Ser Lys Ala Leu Ala Ser Thr Thr Phe Phe Lys Cys Ser
         35                  40                  45
Asn Thr Gly Ile Lys Asp Pro Phe Ile Leu Cys Thr Ala Ala Ile Cys
     50                  55                  60
Ile Ala Val Gly Lys Thr Ser Phe Glu Asp Trp Val Tyr Ser Arg Asp
 65                  70                  75                  80
His Trp Asp Ala Arg Asp Val Tyr Phe Gln Ala Leu Pro His Asp Ala
                85                  90                  95
Glu Leu Leu Asn
            100
<210>515
<211>146
<212>PRT
<213>Chlamydia trachomatis
<400>515
Met Arg Gln Glu Asn Asp Ser Leu Gly Ile Val Leu Val Pro Glu Asp
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Lys Leu Phe Gly Ala Gln Thr Gly Xaa Ser Gln Glu Phe Phe Ser Tyr
             20                  25                  30
Gly Lys Glu Ser Met Pro Leu Glu Ile Ile His Ala Leu Val Lys Ile
         35                  40                  45
Lys Lys Cys Ala Ala Lys Ala Asn Gly Asp Leu Gly Cys Leu Asp Ala
     50                  55                  60
Lys Arg Arg Asp Met Ile Val Ala Ala Thr Asp Glu Ile Leu Ser Gly
 65                  70                  75                  80
Glu Phe Asp Glu His Phe Pro Leu Lys Val Trp Gln Thr Gly Ser Gly
                85                  90                  95
Thr Gln Ser Asn Met Asn Val Asn Glu Val Ile Ala Asn Leu Ala Ile
            100                 105                 110
Gln Arg His Gly Gly Glu Leu Gly Ser Lys His Pro Val His Pro Asn
        115                 120                 125
Asp His Val Asn Lys Pro Ser Pro Gln Met Met Phe Ser Gln Arg Gln
    130                 135                 140
Cys Ile
145
<210>516
<211>364
<212>PRT<213>Chlamydia trachomatis
<400>516
Met Ala Met Ala Leu Ala Gly Leu Phe Val Leu Thr Val Leu Thr Leu
  1               5                  10                  15
Ser Leu Phe Tyr Ser Val Leu Leu Leu Glu Arg Ser Thr Phe Phe Phe
             20                  25                  30
Phe Arg Met Glu Lys Thr Ser Lys Arg Ser Phe Gly Lys Lys Trp Val
         35                  40                  45
```

Phe Ala Leu Ile Pro Ile Thr Val Leu Pro Cys Leu Phe Tyr Leu Lys
50 55 60
Asp Asp Pro Lys Leu Ala Ala Pro Val Pro Thr Lys Ser Phe Thr Leu
65 70 75 80
Leu Leu Asp Trp Thr Pro Asn Pro Asn His Ile Pro Leu Tyr Val Gly
85 90 95
Val Glu Lys Gly Phe Phe Val Asp Glu Gly Ile Ser Leu Thr Leu Gln
100 105 110
Lys Asn Thr Asp Thr Cys Ser Ser Ile Pro His Leu Leu Leu Glu Lys
115 120 125
Val Asp Tyr Thr Leu Tyr His Ser Leu Gly Val Leu Lys Thr Ala Val
130 135 140
Arg Gly Ala Pro Val Gln Val Ala Gly Arg Leu Ile Asp Ser Ser Leu
145 150 155 160
Gln Gly Leu Ile Tyr Arg Lys Asn Glu Gly Val Glu Lys Leu Glu Asp
165 170 175
Leu Asn Gly Arg Val Leu Gly Phe Cys Leu Asn Asp Ser Lys Asn Leu
180 185 190
Pro Asn Leu Leu Glu Ala Leu Arg Lys His His Val Val Pro Ser Glu
195 200 205
Ile Lys Asn Val Ser Ala Asp Met Ile Ser Pro Met Leu Thr Tyr Gln
210 215 220
Ile Asp Phe Leu Tyr Gly Gly Phe Tyr Asn Val Glu Gly Val Thr Ile
225 230 235 240
Ala Leu Lys Gly Thr Pro Thr Gly Cys Phe Leu Ser Asp Thr Tyr Gly
245 250 255
Ser Pro Thr Gly Pro Gln Leu Leu Ile Cys Gly Lys Lys Gly Ser Pro
260 265 270
Ala Met Thr Pro Gln Thr Leu Gln Ser Leu Gln Lys Ala Leu Ser Arg
275 280 285
Ser Leu Asp Phe Cys Arg Glu Tyr Pro Gln Glu Ala Phe Ala Ile Tyr
290 295 300
Val Glu Ala Thr Lys Asp Ser Pro Lys Val Leu Ser Asp Glu Gln Ala
305 310 315 320
Gln Trp Glu Val Thr Leu Pro Leu Leu Ala Lys Thr Gln Glu Pro Leu
325 330 335
Ser Arg Glu Leu Leu Glu Ser Leu Leu Val Thr Leu Ser Thr Thr Cys
340 345 350
Pro Asp Leu Gln Ala Ser Ile Asp Thr Phe Phe Tyr
355 360

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<212>PRT
<213>Chlamydia trachomatis
<400>517

Lys Lys Gln Ser Ala Ala Ser Leu Glu Gly Lys Ser Phe Cys Ser Ser
1 5 10 15
Arg Val Phe Cys Ser Leu Ser Ser Ile Ile Arg Ala Pro Leu Leu Phe
20 25 30
Ala Asn Thr Ser Met Arg Ser Thr Val Val Gly Gly Cys Gly Val Met
35 40 45
Phe Thr Gly Met Arg Ala Ile Leu Arg Asn Thr Gln Ala Ser Leu Trp
50 55 60
Ser Lys Ile Pro Ser Leu Ser Gln Ser Pro Lys Val Ala Pro Ile Ala
65 70 75 80
Leu Pro Leu Met Ile Gly Pro Ser Trp Leu Cys Ala Cys Ala Pro Leu
85 90 95
Ala Met Gln Gln Leu Pro Phe Ser Ile Val Cys Ala Leu Leu Cys Leu
100 105 110
Ser Trp Leu Met Met Thr Ile Thr Thr Ile Val Leu Gln Thr Ala Asn
115 120 125

```
Lys Ala Gly Ser Gln Thr Ile Ile Ala Thr Gln Thr Ile Leu Gly Leu
    130                 135                 140
Ala Val Val Ile Val Gly Ala Gln Leu Leu Val Ser Gly Leu Gln Gln
145                 150                 155                 160
Thr Phe Leu
```

<210>518
<211>213
<212>PRT
<213>Chlamydia trachomatis
<400>518

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Met Leu His Ser Leu Phe Arg Leu Thr Leu Leu Phe Tyr Ala Leu Phe
  1               5                  10                  15
Asn Ala Leu Gly Ser Leu Pro Val Phe Ile Ala Leu Leu Lys Asn Phe
            20                  25                  30
Ser Phe Lys Lys Gln Gln Arg Ile Ile Leu Arg Glu Ser Ile Phe Ala
        35                  40                  45
Leu Leu Leu Leu Leu Leu Phe Val Thr Phe Gly Arg Gly Phe Phe Arg
    50                  55                  60
Leu Leu Gly Ile Thr Leu Pro Ala Phe Gln Phe Thr Gly Gly Leu Leu
65                  70                  75                  80
Leu Gly Ser Ile Ala Ile Asp Met Met Lys Ala Leu Pro Ser Gln Ser
                85                  90                  95
Glu Thr Leu Glu Lys Asp Lys Asp Glu Pro Val Phe Phe Pro Leu Ala
            100                 105                 110
Phe Pro Val Ile Thr Gly Pro Ala Met Ile Thr Ser Thr Leu Gly His
        115                 120                 125
Met Glu Glu Gly Ile Phe Pro Lys Glu Ile Val Leu Gly Ala Ile Val
    130                 135                 140
Leu Ala Trp Leu Phe Ser Leu Ile Thr Leu Leu Phe Ser Ser Ser Ile
145                 150                 155                 160
Asn Arg Leu Phe Gly Gln Met Gly Leu Leu Ala Leu Glu Arg Leu Phe
                165                 170                 175
Gly Ile Ser Leu Ala Leu Met Ala Gly Asn Leu Met Leu Lys Ala Leu
            180                 185                 190
Ser Thr Ala Phe Asn Ile Gly Tyr Tyr Met Leu His Leu Lys Ala Leu
        195                 200                 205
Leu Tyr Val Lys Arg
    210
```

<210>519
<211>237
<212>PRT
<213>Chlamydia trachomatis
<400>519

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Ser Leu Pro Ser Tyr Ser Ser Tyr Ser Arg Cys Phe Met Arg Xaa Ala
  1               5                  10                  15
Lys Glu Gly Val Thr Thr Asn Glu Leu Asp Leu Leu Ser Arg Glu Leu
            20                  25                  30
His Lys Arg His Asn Ala Ile Pro Ala Pro Leu Asn Tyr Gly His Pro
        35                  40                  45
Pro Phe Pro Lys Thr Ile Cys Thr Ser Leu Asn Glu Val Ile Cys His
    50                  55                  60
Gly Ile Pro Asn Asp Ile Pro Leu Gln Asn Gly Asp Ile Met Asn Ile
65                  70                  75                  80
Asp Val Ser Cys Ile Val Asp Gly Phe Tyr Gly Asp Cys Ser Arg Met
                85                  90                  95
Val Met Ile Gly Glu Val Ser Glu Ile Lys Arg Lys Val Cys Glu Ala
            100                 105                 110
Ser Leu Glu Ala Leu Asn Ala Ala Ile Ser Ile Leu Glu Pro Asn Leu
        115                 120                 125
Pro Leu Tyr Glu Ile Gly Glu Val Ile Glu Asn Cys Ala Ala Lys Tyr
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    130                 135                 140
Gly Phe Ser Val Val Asp Gln Phe Val Gly His Gly Val Gly Val Lys
145                 150                 155                 160
Phe His Glu Asn Pro Phe Val Ala His His Arg Asn Ser Cys Lys Ile
                165                 170                 175
Pro Leu Ala Pro Gly Met Ile Phe Thr Ile Glu Pro Met Ile Asn Val
            180                 185                 190
Gly Lys Lys Glu Gly Phe Ile Asp Pro Ile Asn His Trp Glu Ala Arg
        195                 200                 205
Thr Cys Asp His Gln Pro Ser Ala Gln Trp Glu His Ala Ile Leu Ile
    210                 215                 220
Thr Asp Ser Gly Cys Glu Val Leu Thr Leu Leu Asp Lys
225                 230                 235
<210>520
<211>411
<212>PRT
<213>Chlamydia trachomatis
<400>520
Thr Lys Lys Arg Val Leu Met Gly Phe Gly Thr Val Arg Gly Lys Gly
  1               5                  10                  15
Lys Ala Val Lys Ser Phe Phe Leu Arg Pro Leu Gln Asn Leu Glu Val
            20                  25                  30
Gly Leu Phe Ser Leu Pro Ile Val Leu Leu Leu Gly Glu Ile Gly Cys
        35                  40                  45
Val Ser Ser Ile Ser Ser Val Ser Leu Val Ala Val Leu Ser Ile Val
    50                  55                  60
Gly Val Phe Val Ala Leu Val Ser Phe Phe Arg Ser Trp Gly Tyr Gly
65                  70                  75                  80
Leu Ser Val Val Gly Ala Ile Phe Phe Gly Leu Ala Leu Cys Asn Asn
                85                  90                  95
Phe Pro Val Ser Val Phe Trp Gly Gly Leu Leu Thr Val Ser Phe Ile
            100                 105                 110
Ile Ser Tyr Gly Ile Leu Leu Leu Ser Val Ser Leu Val Glu Gly His
        115                 120                 125
Ile Lys Glu Lys Ala Val Ser Leu Ser Glu Leu Thr Ala Ser His Asn
    130                 135                 140
Ser Leu Gln Asp Ser Tyr Asn Arg Glu Val Gln Glu Arg Lys Glu Lys
145                 150                 155                 160
Glu Leu Leu Ala Gln Ser Lys Ile Thr Ala Leu Glu Gln Glu Leu Ser
                165                 170                 175
Val Ser His Glu Gln Leu Gln Glu Val Ser Arg Lys Tyr Thr His Thr
            180                 185                 190
Ser Glu Asp Leu Gln Ile Leu Ile Asp Gln Arg Asp Ser Trp Leu Lys
        195                 200                 205
Asp Tyr Met Thr Leu His Gln Glu Tyr Val Arg Val Val Ala Gly Asp
    210                 215                 220
Glu Glu Asn Val Ile Phe Pro Trp Lys Val Phe Gln Gly Asn Ser Glu
225                 230                 235                 240
Lys Asp Ser Gly Tyr Gln Gln Arg Val Gln Asp Ala Glu His Lys Ile
                245                 250                 255
Ala His Leu Glu Lys Leu Cys Glu Glu Glu Asn Ser Gly Lys Arg Tyr
            260                 265                 270
Ala Glu Glu Cys Leu Asp Lys Ala Leu Ala Asp Leu Leu Glu Ser Thr
        275                 280                 285
Arg Leu Arg Glu Ile Leu Glu Lys Glu Ile Phe Gln Lys Asp Glu Glu
    290                 295                 300
Ile Ala Ser Leu Lys Gln Glu Ile Ala Ala Glu Lys Leu Leu Ser Ser
305                 310                 315                 320
Ser Val Ser Asp Asp Arg Ala Ala Tyr Lys Gly Lys Tyr Leu Gln Leu
                325                 330                 335
Arg Glu Gln Phe Thr Val Lys Asp Ser Phe Leu Lys Lys Ala Arg Arg
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09/30/2004 09:39:25

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            340                 345                 350
Glu Arg Phe Leu Ala Gln Glu Gln Leu Leu Val Leu Lys Arg Ala Lys
        355                 360                 365
Glu Glu Glu Ala Leu Asn Leu Ser Thr Thr Asp Ser Phe Ser Ile Ile
    370                 375                 380
Gln Asn Leu Leu Leu Gln Ile Glu Ala Leu Glu Glu Glu Val Thr Tyr
385                 390                 395                 400
Leu Glu Glu Leu Val Leu His Asn Gln Asn Arg
                405                 410
<210>521
<211>152
<212>PRT
<213>Chlamydia trachomatis
<400>521
Asn Met Ser Ala Pro Thr Ser Gln Val Gly Asp Thr Gln Tyr Val Ser
  1               5                  10                  15
Ser Leu Pro Pro Leu Glu Pro Leu Gly Thr Pro Pro Ile Ala Glu Leu
            20                  25                  30
Leu Phe Ser Ile Tyr Ser Leu Leu Leu Glu Ala Val Glu Ile Arg Gln
        35                  40                  45
Glu Thr Ile Leu Thr Gln Ser Lys Gln Leu Asn Asp Asn Thr Asn Ile
    50                  55                  60
Gln Gln Gln Leu Asn Gln Glu Thr Asn Gln Ile Lys Tyr Ala Val Val
65                  70                  75                  80
Gly Ser Gly Ala Lys Glu Asp Glu Asn His Thr Ser Thr Lys Pro Glu
                85                  90                  95
Pro Lys Leu Phe Cys Thr Thr Leu Lys Tyr Pro Arg Pro Ile Ser Asn
            100                 105                 110
Cys Pro Thr Lys Trp Thr Asp Tyr Pro Leu Ser Arg Ile Tyr Lys His
        115                 120                 125
Gln His Tyr Ala Ala Asn Arg Ser Thr Glu Leu Leu Leu His Gln Asn
    130                 135                 140
Ile Glu Leu Arg Gly Lys His Ser
145                 150
<210>522
<211>92
<212>PRT
<213>Chlamydia trachomatis
<400>522
Thr Lys Lys Arg Ile Lys Ser Asn Thr Leu Ser Leu Ala Leu Glu Leu
  1               5                  10                  15
Lys Lys Thr Lys Ile Thr Arg Val Gln Asn Gln Asn Gln Asn Tyr Ser
            20                  25                  30
Ala Gln Arg Ser Asn Ile Gln Asp Gln Leu Val Thr Ala Arg Gln Asn
        35                  40                  45
Gly Gln Ile Ile Leu Ser His Ala Ser Thr Asn Ile Asn Ile Met Gln
    50                  55                  60
Gln Ile Ala Gln Gln Asn Ser Ser Phe Ile Lys Thr Leu Asn Ser Val
65                  70                  75                  80
Gly Ser Thr Val Asn Gln Leu Asn Lys Pro Leu Ser
                85                  90
<210>523
<211>84
<212>PRT
<213>Chlamydia trachomatis
<400>523
Ile Tyr Thr Thr Ile Pro Lys Asn Gln Val Asn Ser Gln Asn Ser Ser
  1               5                  10                  15
Tyr Leu Gln Asn Val Gln Ser Val Asn Gln Ala Val Gly Ala Ser Arg
            20                  25                  30
Gln Ala Ile Gln Asn Gln Ile Ser Gly Leu Gly Asn Ala Ser Gln Val
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09934-0020P00

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          35                  40                  45
Ile Ser Ser Asn Leu Asn Thr Asn Asn Asn Ile Ile Gln Gln Ser Leu
      50                  55                  60
Gln Val Gly Gln Ala Leu Ile Gln Thr Phe Ser Gln Ile Val Ser Leu
 65                  70                  75                  80
Ile Ala Asn Ile
```

<210>524
<211>205
<212>PRT
<213>Chlamydia trachomatis
<400>524

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Arg Gly Tyr Pro Met Ser Ser Ala Ile Ile Pro Thr Leu Pro Glu Lys
  1               5                  10                  15
Asn Thr Val Ile Pro Asp Ser Thr Leu Ile Glu Pro Thr Ser Ile Glu
             20                  25                  30
Ile Asn Lys Lys Ser Ala Met Tyr Phe Cys Ile Ala Val Met Leu Lys
          35                  40                  45
Leu Ser Val Ala Thr Thr Asp Tyr Ser His Ala Ile Met Ala Val Leu
      50                  55                  60
Gln Glu Asn Thr Leu Glu Gln Gln Arg Lys Thr Lys Glu Leu Ile Asn
 65                  70                  75                  80
Ile Pro Leu Leu Tyr Val Pro Asp Leu Ile Lys Lys Asn Gly Ser Asp
                 85                  90                  95
Asp Glu Tyr Thr Asn His Ser Thr Ile Gln Ala Phe Gln Thr Ser Asn
            100                 105                 110
Gln Gln Ile Thr Ala Asn Arg Glu Leu Ile Gln Gln Glu Leu Ser Ala
        115                 120                 125
Ala Gln Gln Arg Ala Gln Ala Asn Gln Lys Ser Val Asn Ala Thr Ser
    130                 135                 140
Thr Glu Ser Met Lys Ile Leu Gln Ala Val Ser Ala Leu Leu Thr Ser
145                 150                 155                 160
Leu Ile Asp Leu Thr Ile Lys Ala Asn Leu Thr Thr Ser Leu Arg Thr
                165                 170                 175
Asn Ile Leu Gly Cys Thr Gly Phe Pro Met His Pro Asn Asn Lys Pro
            180                 185                 190
Cys Glu Thr Lys Gly Arg Leu Thr Ala Lys Asn Arg Ala
        195                 200                 205
```

<210>525
<211>232
<212>PRT
<213>Chlamydia trachomatis
<400>525

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Glu Leu Ser Ser Pro Ile Ser Thr Asn Lys Leu Pro Phe Gly Glu Ser
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Pro Lys Thr Ala Ser Leu Leu Val Leu Val Thr Ser Cys Ser Ala Pro
             20                  25                  30
Ser Ile Ala Phe Phe Leu Gln Tyr Phe Phe Gln Val Arg Gly Pro Ile
          35                  40                  45
Glu Trp Leu Ala Leu Ser Val Lys Gly Ile His Gln His Tyr Phe Trp
      50                  55                  60
Gln Trp Leu Thr Tyr Pro Leu Val Thr Ala Asp Thr Leu Lys Leu Gly
 65                  70                  75                  80
Asp Leu Arg Ser Leu Glu Ile Thr Gln Arg Leu Leu Met Arg Asn Val
                 85                  90                  95
Leu Asp Phe Ile Leu Phe Tyr Lys Ala Thr Asp Val Ile Ile Arg Lys
            100                 105                 110
Leu Gly Thr Gly Ser Phe Val Phe Leu Leu Thr Thr Gln Val Ser Ile
        115                 120                 125
Ala Gly Ile Ser Ile Trp Ala Phe Leu Trp Leu Ile Gly Ser Thr Gln
    130                 135                 140
```

```
Ala Phe Phe Gly Pro Glu Ser Leu Ile Cys Ala Leu Leu Ile Val Arg
145                 150                 155                 160
Val Phe Leu Asp Pro Glu Lys Arg Leu Thr Leu Pro Leu Phe Pro Ile
                165                 170                 175
Ser Leu Ser Arg Lys Trp Ser Phe Val Leu Leu Leu His Phe Tyr Phe
            180                 185                 190
Leu Ile Leu Ile Leu Ser Gly Ala Tyr Ala Ile Leu Leu Gly Ser Val
        195                 200                 205
Leu Ser Met Ala Leu Ala Ile Cys Phe Cys Tyr Lys Glu Asn Ile Pro
    210                 215                 220
Asn Pro Tyr Arg Gly Ser Tyr Arg
225                 230
<210>526
<211>176
<212>PRT
<213>Chlamydia trachomatis
<400>526
Met Gln Glu Asn Leu Phe Tyr Arg Val Ile Ala Asn Phe Met Cys Ile
  1               5                  10                  15
Glu Lys Asp Leu Phe Phe Met Lys Lys Ala Leu Asp Glu Ala Arg Lys
            20                  25                  30
Ala Tyr Glu Gln Asp Glu Val Pro Val Gly Cys Ile Ile Val His Gly
        35                  40                  45
Asp Lys Ile Ile Ala Arg Gly His Asn Ser Val Glu Gln Leu Lys Asp
    50                  55                  60
Pro Thr Ala His Ala Glu Met Ile Cys Ile Ser Ala Ala Ala Glu Tyr
65                  70                  75                  80
Leu Glu Asn Trp Arg Leu Lys Asp Thr Ile Leu Tyr Cys Thr Leu Glu
                85                  90                  95
Pro Cys Leu Met Cys Ala Gly Ala Ile Gln Leu Ala Arg Ile Pro Arg
            100                 105                 110
Ile Val Trp Gly Ala Pro Asp Leu Arg Leu Gly Ala Gly Gly Ser Trp
        115                 120                 125
Leu Asn Val Phe Leu Glu Lys His Pro Phe His Gln Val Glu Cys Cys
    130                 135                 140
Ser Gly Val Cys Tyr Gln Glu Ser Glu Gln Leu Met Lys Asn Phe Phe
145                 150                 155                 160
Leu Glu Lys Arg Lys Ala Lys Asp Glu Gly Arg Asn Ser Arg Ala Thr
                165                 170                 175
<210>527
<211>95
<212>PRT
<213>Chlamydia trachomatis
<400>527
Tyr Leu Arg Arg His Arg Met Ser Leu Asp Lys Gly Thr Lys Glu Glu
  1               5                  10                  15
Ile Thr Lys Lys Phe Gln Leu His Glu Lys Asp Thr Gly Ser Ala Asp
            20                  25                  30
Val Gln Ile Ala Ile Leu Thr Glu His Ile Thr Glu Leu Lys Glu His
        35                  40                  45
Leu Lys Arg Ser Pro Lys Asp Gln Asn Ser Arg Leu Ala Leu Leu Lys
    50                  55                  60
Leu Val Gly Gln Arg Arg Lys Leu Leu Glu Tyr Leu Asn Ser Thr Asp
65                  70                  75                  80
Thr Glu Arg Tyr Lys Asn Leu Ile Ala Arg Leu Asn Leu Arg Lys
                85                  90                  95
<210>528
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<212>PRT
<213>Chlamydia trachomatis
<400>528
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```
Asp Asn Ser Met Ala Phe Glu Thr Phe Ser Val Ala Leu Asp Lys Asp
  1               5                  10                  15
Lys Thr Leu Ile Phe Glu Thr Gly Lys Ile Ala Arg Gln Ala Ser Gly
            20                  25                  30
Ala Val Leu Val Lys Met Asn Glu Thr Trp Val Phe Ser Ser Ala Cys
        35                  40                  45
Ala Ala Ser Leu Ser Glu Ala Val Gly Phe Leu Pro Phe Arg Val Asp
    50                  55                  60
Tyr Gln Glu Lys Phe Ser Ser Ala Gly Arg Thr Ser Gly Gly Phe Leu
65                  70                  75                  80
Lys Arg Glu Gly Arg Pro Ser Glu Arg Glu Ile Leu Val Ser Arg Leu
                85                  90                  95
Ile Asp Arg Ser Leu Arg Pro Ser Phe Pro Asn Arg Leu Met Gln Asp
            100                 105                 110
Ile Gln Val Leu Ser Tyr Val Trp Ser Tyr Asp Gly Lys Thr Leu Pro
        115                 120                 125
Asp Pro Pro Ser Leu Phe Ala Glu Leu Leu Pro Leu
    130                 135                 140
<210>529
<211>198
<212>PRT
<213>Chlamydia trachomatis
<400>529
Val Pro Pro Ser Leu Asp Leu Val Met Ala Gly Thr Ala Ser Ala Val
  1               5                  10                  15
Leu Met Ile Glu Gly His Cys Asp Phe Leu Thr Glu Glu Gln Val Leu
            20                  25                  30
Glu Ala Ile Ala Phe Gly Gln Thr Tyr Ile Ala Lys Ile Cys Asp Ala
        35                  40                  45
Ile Glu Ala Trp Gln Lys Ala Ile Gly Lys Gln Lys Asn Phe Ser Ala
    50                  55                  60
Val Leu Asp Met Pro Glu Asp Val Gln Asn Val Val Ser Asp Phe Ile
65                  70                  75                  80
Arg Glu Lys Phe Glu Lys Ala Leu Ser Phe Arg Asp Lys Glu Ala Leu
                85                  90                  95
Glu Gln Ala Ser Lys Glu Leu Glu Glu Ser Val Ile Ala Asn Leu Val
            100                 105                 110
Gln Glu Glu Asn Ser Asp Phe Ser Leu Leu Asn Val Lys Ala Ala Phe
        115                 120                 125
Lys Thr Ala Lys Ser Asn Gln Met Arg Ala Leu Ile Gln Asp Leu Gly
    130                 135                 140
Ile Arg Val Asp Gly Arg Thr Thr Thr Glu Ile Arg Pro Ile Ser Ile
145                 150                 155                 160
Glu Thr Pro Leu Leu Pro Arg Thr His Gly Ser Cys Leu Phe Thr Arg
                165                 170                 175
Gly Glu Thr Gln Ser Met Ala Val Cys Thr Leu Gly Gly Glu Asn Met
            180                 185                 190
Ala Gln Asp Ser Lys Ile
        195
<210>530
<211>307
<212>PRT
<213>Chlamydia trachomatis
<400>530
Lys Val Gly Arg Ile Gly Ser Pro Gly Arg Arg Glu Ile Gly His Gly
  1               5                  10                  15
Lys Leu Ala Glu Xaa Ala Leu Ser His Val Leu Pro Glu Thr Ser Arg
            20                  25                  30
Phe Pro Tyr Ile Ile Arg Leu Glu Ser Asn Ile Thr Glu Ser Asn Gly
        35                  40                  45
Ser Ser Ser Met Ala Ser Val Cys Gly Gly Cys Leu Ala Leu Met Asp
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09/838,243

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     50                  55                  60
Ala Gly Val Pro Ile Lys Ala Pro Val Ala Gly Ile Ala Met Gly Leu
 65                  70                  75                  80
Ile Leu Asp Arg Asp Gln Ala Ile Ile Leu Ser Asp Ile Ser Gly Ile
                 85                  90                  95
Glu Asp His Leu Gly Asp Met Asp Phe Lys Val Ala Gly Thr Ala Lys
            100                 105                 110
Gly Ile Thr Ala Phe Gln Met Asp Ile Lys Ile Glu Gly Ile Thr His
        115                 120                 125
Lys Ile Met Glu Gln Ala Leu Ala Gln Ala Lys Gln Gly Arg Ser His
    130                 135                 140
Ile Leu Asn Leu Met Thr Gln Val Leu Ala Ser Pro Lys Gly Thr Val
145                 150                 155                 160
Ser Lys Tyr Ala Pro Arg Ile Glu Thr Met Gln Ile Asn Thr Ser Lys
                165                 170                 175
Ile Ala Thr Val Ile Gly Pro Gly Gly Lys Gln Ile Arg Gln Ile Ile
            180                 185                 190
Glu Arg Ser Gly Ala Gln Val Asp Ile Asn Asp Asp Gly Val Ile Asn
        195                 200                 205
Ile Ala Ala Ser Thr Gln Glu Ser Ile Asn Lys Ala Lys Glu Leu Ile
    210                 215                 220
Glu Gly Leu Thr Gly Glu Val Glu Val Gly Lys Val Tyr Asn Gly Arg
225                 230                 235                 240
Val Thr Ser Ile Ala Thr Phe Gly Val Phe Val Glu Val Leu Pro Gly
                245                 250                 255
Lys Glu Gly Leu Cys His Ile Ser Glu Leu Ser Lys Gln Lys Val Asp
            260                 265                 270
Asn Ile Ser Asp Phe Val Lys Glu Gly Asp Lys Leu Ala Val Lys Leu
        275                 280                 285
Leu Ser Ile Asn Glu Lys Gly Gln Leu Lys Leu Ser His Lys Ala Thr
    290                 295                 300
Leu Glu Asp
305
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<211>423
<212>PRT
<213>Chlamydia trachomatis
<400>531
Pro Val Leu Ile Ser Leu Lys Cys Leu Leu Gly Leu Glu Gln Val Glu
  1                 5                  10                  15
Ser Glu Ile Cys Ser Ser Arg Arg Ser Val Met Leu Leu Gly Ile Ile
             20                  25                  30
Phe Ile Asp Glu Ile Asp Ala Val Gly Arg His Arg Gly Ala Gly Ile
         35                  40                  45
Gly Gly Gly His Asp Glu Arg Glu Gln Thr Leu Asn Gln Leu Leu Val
     50                  55                  60
Glu Met Asp Gly Phe Gly Thr Asn Glu Gly Val Ile Leu Met Ala Ala
 65                  70                  75                  80
Thr Asn Arg Pro Asp Val Leu Asp Lys Ala Leu Leu Arg Pro Gly Arg
                 85                  90                  95
Phe Asp Arg Arg Val Val Val Asn Leu Pro Asp Ile Lys Gly Arg Phe
            100                 105                 110
Glu Ile Leu Ala Val His Ala Lys Arg Ile Lys Leu Asp Pro Thr Val
        115                 120                 125
Asp Leu Met Ala Val Ala Arg Ser Thr Pro Gly Ala Ser Gly Ala Asp
    130                 135                 140
Leu Glu Asn Leu Leu Asn Glu Ala Ala Leu Leu Ala Ala Arg Lys Asp
145                 150                 155                 160
Arg Thr Ala Val Thr Ala Val Glu Val Ala Glu Ala Arg Asp Lys Val
                165                 170                 175
Leu Tyr Gly Lys Glu Arg Arg Ser Leu Glu Met Asp Ala Gln Glu Lys
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            180                 185                 190
Lys Thr Thr Ala Tyr His Glu Ser Gly His Ala Ile Val Gly Leu Cys
        195                 200                 205
Val Glu His Ser Asp Pro Val Asp Lys Val Thr Ile Ile Pro Arg Gly
    210                 215                 220
Leu Ser Leu Gly Ala Thr His Phe Leu Pro Glu Lys Asn Lys Leu Ser
225                 230                 235                 240
Tyr Trp Lys Lys Glu Leu Tyr Asp Gln Leu Ala Val Leu Met Gly Gly
                245                 250                 255
Arg Ala Ala Glu Gln Ile Phe Leu Gly Asp Val Ser Ser Gly Ala Gln
            260                 265                 270
Gln Asp Ile Ala Gln Ala Thr Lys Ile Val Arg Ser Met Ile Cys Glu
        275                 280                 285
Trp Gly Met Ser Asp His Leu Gly Thr Val Ala Tyr Asp Glu His Ser
    290                 295                 300
Glu Ala Ala Pro Thr Gly Tyr Gly Ser Tyr His Glu Lys Asn Tyr Ser
305                 310                 315                 320
Glu Glu Thr Ala Lys Val Ile Asp Asn Glu Leu Lys Thr Leu Leu Asp
                325                 330                 335
Ala Ala Tyr Gln Arg Ala Leu Asp Ile Ile Asn Ser His Lys Glu Glu
            340                 345                 350
Leu Glu Leu Met Thr Gln Met Leu Ile Glu Phe Glu Thr Leu Asp Ser
        355                 360                 365
Lys Asp Val Lys Glu Ile Met Asp His Ser Trp Asp Ala Asp Lys Lys
    370                 375                 380
Arg Ala Arg Met Lys Glu Glu Gly Met Leu Tyr Lys Lys Ile Ser Asp
385                 390                 395                 400
Asp Leu Pro Pro Pro Pro Pro Gln Glu Asn Val Gln Asp Gly Thr Ser
                405                 410                 415
Leu Lys Phe Asn Thr Ser Thr
            420
<210>532
<211>82
<212>PRT
<213>Chlamydia trachomatis
<400>532
Ile Ser Leu Lys Asn Pro Thr Lys Phe Thr Ser Leu Gly Gly Arg Ile
  1               5                  10                  15
Pro Lys Gly Ile Leu Leu Ile Gly Ala Pro Gly Thr Gly Lys Thr Leu
            20                  25                  30
Ile Ala Lys Ala Val Ala Gly Glu Ala Asp Arg Pro Phe Phe Ser Ile
        35                  40                  45
Ala Gly Ser Asp Phe Val Glu Met Phe Val Gly Val Gly Ala Ser Arg
    50                  55                  60
Ile Arg Asp Met Phe Glu Gln Ala Lys Arg Asn Ala Pro Trp His Tyr
65                  70                  75                  80
Leu His

<210>533
<211>451
<212>PRT
<213>Chlamydia trachomatis
<400>533
Leu Ser Ala Cys Leu Ile Ser Ile Val Val Ser Phe Met Ala Lys Asp
  1               5                  10                  15
Lys Lys Thr Asn Pro Glu Ser Lys Lys Ser Phe Pro Thr Ala Phe Phe
            20                  25                  30
Phe Leu Leu Phe Gly Val Ile Phe Gly Val Val Thr Val Gln Asn Phe
        35                  40                  45
Phe Ser Ala Lys Lys Ala Ser Val Gly Phe Ser His Gln Leu Glu His
    50                  55                  60
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09/09/2002 15:22:26

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Leu Val Asn Leu Lys Leu Leu Ile Pro Glu Glu Ser Arg Lys Thr Ala
 65                  70                  75                  80
Leu Asn Asp Asn Leu Val Ser Phe Ser Gly Arg Phe Arg Glu Val Val
                85                  90                  95
Pro Ala Glu Gly Gln Val Arg Tyr Gln Tyr Leu Asp Leu Ile Glu Arg
            100                 105                 110
Lys His Gln Ile Asp Phe Glu Leu Glu Glu Ala Ser Lys Ser Leu Thr
        115                 120                 125
Val Leu Ser Lys Glu Val Arg Asn Ala Ile Thr Trp Phe Ser Ala Ile
    130                 135                 140
Ser Gly Met Pro Ile Pro Glu Ala Gly Tyr Thr Ile Ser Pro Arg Thr
145                 150                 155                 160
Asp Val Gly Leu Ser Val Leu Glu Pro Leu Val Val Tyr Gly Pro Val
                165                 170                 175
Asp Ala Gln Ile Val Asn Leu Ala Ala Leu Glu Asn Arg Val Arg Ser
            180                 185                 190
Leu Pro Lys Ser Thr Glu Ser Leu Arg Val Phe Gly Ser Asp Leu Tyr
        195                 200                 205
Ala Leu Ile Gly Lys Tyr Leu Ser Pro Ala Leu Gly Ile Gly Ser Glu
    210                 215                 220
Ser Leu Lys Lys Glu Ile Lys Asp Leu His Gln Gln Val Glu Asn Ser
225                 230                 235                 240
Leu Thr Gln Val Ile Glu Gly Asp Gln Ala Val Ala Leu Tyr Lys Thr
                245                 250                 255
Val Leu Glu Thr Leu His Arg Ile Ser Leu Ala Leu Val Ser Pro Glu
            260                 265                 270
Glu Gly Thr Arg Phe His Gln Leu Arg Ser Val Arg Leu Tyr Arg Glu
        275                 280                 285
Asp Phe Asn Arg Cys Val Lys Leu Leu Arg Glu Ser Asp Glu Thr Gln
    290                 295                 300
Val Gln Leu Asp Lys Leu Arg Gly Glu Leu Val Gln Ala Val Trp Tyr
305                 310                 315                 320
Phe Asn Asn Gln Glu Leu Ser Ser Arg Ala Leu Glu Lys Gln Asp Pro
                325                 330                 335
Glu Val Phe Ser Arg Trp Phe Glu Gly Ala Lys Gln Glu Trp Ala Ala
            340                 345                 350
Phe Ser Ser Asn Lys Ser Leu Ser Phe Arg Ala Pro Asp Gln Pro Arg
        355                 360                 365
Asn Leu Val Leu Glu Lys Thr Phe Arg Ser Glu Glu Pro Thr Pro His
    370                 375                 380
Tyr Ser Gly Tyr Leu Phe Thr Phe Met Pro Ile Ile Leu Val Leu Leu
385                 390                 395                 400
Phe Ile Tyr Phe Ile Phe Ser Arg Gln Val Lys Gly Met Asn Gly Ser
                405                 410                 415
Ala Met Ser Phe Gly Lys Ser Pro Ala Arg Leu Leu Ala Lys Gly Gln
            420                 425                 430
Lys Gln Ser Asn Phe Cys Gly Cys Ser Arg Asp Arg Gly Ser Gln Arg
        435                 440                 445
Arg Thr Arg
    450
<210>534
<211>323
<212>PRT
<213>Chlamydia trachomatis
<400>534
Cys Tyr Asp Asn Pro Phe Ile Phe Glu Asn Asp Lys Gln Leu Glu Gly
  1               5                  10                  15
Phe Phe Ser Ser Leu Asp Lys Lys Lys Lys Tyr Leu Leu Ala Leu Ser
             20                  25                  30
Gly Gly Ser Asp Ser Leu Phe Leu Met Tyr Leu Leu Lys Ser Arg Ala
         35                  40                  45
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Ile Phe Phe Thr Ala Val His Val Asp Tyr Gly Trp Arg Glu Thr Ser
     50                  55                  60
Tyr Gln Glu Ala Ser Asp Leu Ala Ala Leu Cys Glu Gln Glu Gln Ile
 65                  70                  75                  80
Pro Phe Ile Leu Asp Arg Pro Glu Ala Thr Asp Pro Met Asp Ser Arg
                85                  90                  95
Asp Ile Glu Asn Ala Ala Arg Arg Tyr Arg Tyr Glu Leu Phe Tyr Arg
            100                 105                 110
Leu Cys Lys Glu Lys Cys Phe Ser Gly Val Phe Leu Gly His His Ala
        115                 120                 125
Asp Asp Gln Ala Glu Thr Ile Leu Lys Arg Val Phe Glu Gly Ala His
    130                 135                 140
Leu Gly Asn Leu Lys Gly Met Ser Ala Gln Val Met Tyr Arg Asp Val
145                 150                 155                 160
Ala Leu Leu Arg Pro Leu Leu His Ile Pro Lys His Lys Ile Val Glu
                165                 170                 175
Ala Leu Asp Ser His Gln Val Gln Tyr Val Gln Asp Ile Thr Asn Cys
            180                 185                 190
Asn Glu Arg Phe Leu Arg Ala Arg Met Arg Glu Arg Leu Phe Pro Tyr
        195                 200                 205
Leu Gln Asp Val Phe Gly Lys Asn Ile Arg Asp Pro Leu Leu Ser Leu
    210                 215                 220
Ala Gly Asp Ser Ala Glu Leu Arg Glu Tyr Leu Asp Gln Gln Thr Ala
225                 230                 235                 240
Pro Phe Leu Leu Arg Val Val Asp Asn Glu Arg Gly Lys Leu Leu Pro
                245                 250                 255
Ile Glu Gln Glu Leu Leu Lys Thr Pro Phe Leu Ala Lys Trp Val Cys
            260                 265                 270
Lys Gln Phe Phe Leu Asn Glu Gly Leu Val Ala Ser Lys Ser Phe Leu
        275                 280                 285
Gln Thr Val Tyr Asp His Leu Met Thr Gly Ser Thr Ala Arg Leu Arg
    290                 295                 300
Leu Arg Asn Arg Thr Val Leu Val Lys Ala Arg Gly Val Ile Ile Glu
305                 310                 315                 320
Ser Ile Tyr

<210>535
<211>365
<212>PRT
<213>Chlamydia trachomatis
<400>535
Asn Val Gln Leu Ile Phe Tyr Tyr Gly Ile Ile Met Pro Ile Leu Trp
  1                 5                  10                  15
Lys Val Leu Ile Phe Arg Tyr Leu Lys Thr Thr Val Phe Cys Thr Leu
             20                  25                  30
Ser Leu Ile Cys Ile Ser Ile Ile Ser Ser Leu Gln Glu Ile Val Ser
         35                  40                  45
Tyr Ile Ala Lys Asp Val Pro Tyr Ala Thr Val Phe Lys Val Thr Ala
     50                  55                  60
Tyr Gln Ile Pro Tyr Leu Leu Pro Phe Ile Leu Pro Ala Ser Cys Phe
 65                  70                  75                  80
Ile Ser Ala Phe Thr Leu Phe Arg Lys Leu Ser Asp Asn Asn Gln Ile
                85                  90                  95
Thr Phe Leu Lys Ala Ser Gly Ala Ser Gln Gly Met Ile Ile Phe Pro
            100                 105                 110
Val Leu Ile Ala Ser Gly Val Leu Cys Cys Phe Asn Phe Tyr Thr Cys
        115                 120                 125
Ser Glu Leu Ala Ser Ile Cys Arg Phe Gln Thr Gly Lys Ala Ile Ala
    130                 135                 140
Asn Ile Ala Met Thr Ser Pro Ala Leu Leu Leu Gln Thr Leu Gln Lys
145                 150                 155                 160
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Lys Glu Asn Asp Arg Ile Phe Ile Ala Ile Asp His Cys Gly Lys Ser
165 170 175
Lys Phe Asp Asn Val Ile Ile Ala Leu Lys His Asn Gln Glu Ile Ser
180 185 190
Asn Ile Gly Phe Ile Glu Thr Ile Ile Pro Asp Val Asn Lys Asp Ser
195 200 205
Val Gln Ala Lys Asn Val Leu Val Ile Ser Lys Ile Pro Leu Phe Ser
210 215 220
Glu Ala Arg Thr Ser Asn Pro Asn Glu Phe Tyr Leu Glu Thr Leu Asp
225 230 235 240
Glu Phe Leu Ile Pro Lys Ile Thr Ala Thr Leu Phe Ala Gly Lys Ser
245 250 255
Tyr Met Lys Thr Arg Thr Asp Tyr Leu Pro Trp Lys Gln Leu Ile Gln
260 265 270
Asp Ala Arg Leu His Leu Ala Glu Ile Leu Arg Arg Ile Ala Ile Gly
275 280 285
Leu Leu Cys Ser Thr Met Thr Phe Ser Gly Leu Ala Leu Gly Thr Tyr
290 295 300
Lys Pro Arg Phe Arg Lys Pro Val Leu Ile Tyr Ala Leu Phe Pro Ile
305 310 315 320
Leu Asn Leu Ile Phe Leu Ile Val Gly Lys Asn Thr Ile His Pro Ile
325 330 335
Ser Ala Val Met Leu Phe Leu Phe Pro Gln Leu Leu Ser Trp Leu Ile
340 345 350
Phe Ser Trp Arg Ile Tyr Thr Glu Asn Gln Gly His Ala
355 360 365
<210>536
<211>116
<212>PRT
<213>Chlamydia trachomatis
<400>536
Lys Ser Arg Ala Cys Ile Asp Met Val Ile Trp Lys Arg Tyr Leu Leu
1 5 10 15
Ser Arg Phe Trp Ile Ser Leu Ser Ser Leu Phe Phe Leu Ala Val Ile
20 25 30
Phe Tyr Ala Ser Ile His His Ser Leu His Ala Phe Arg Glu Gly Lys
35 40 45
Thr Ala Ile Ala Gly Ala Pro Leu Gln Leu Ser Leu Leu Tyr Tyr Leu
50 55 60
Ser Gln Ile Ser Leu Lys Ala Glu Phe Ile Leu Pro Thr Thr Arg Cys
65 70 75 80
Asn Cys Phe Asp Asn Tyr Thr Ile Phe His Ala Glu Gln Lys Arg Asn
85 90 95
Ser Ile Thr Ala Gly Phe Arg Ala Phe Pro Glu Asn Phe Xaa Thr Ser
100 105 110
Thr Ser Tyr Ile
115
<210>537
<211>154
<212>PRT
<213>Chlamydia trachomatis
<400>537
Lys Gln Asn Ser Phe Ser Leu Gln Leu Val Ala Ile Ala Ser Thr Ile
1 5 10 15
Thr Leu Phe Ser Met Gln Ser Lys Arg Glu Ile Leu Leu Leu Gln Ala
20 25 30
Ser Gly Leu Ser Leu Lys Thr Leu Xaa Arg Pro Leu Val Ile Ser Ser
35 40 45
Ser Leu Ile Thr Leu Leu Leu Tyr Ala Asn Phe Gln Trp Leu His Pro
50 55 60
Ile Cys Glu Lys Ile Ser Val Thr Lys Glu His Met Asp Lys Gly Thr

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 65                  70                  75                  80
Leu Glu Lys Ala Gln Glu Lys Ile Pro Ala Leu Tyr Leu Lys Asp Gln
                85                  90                  95
Thr Val Leu Ile Phe Ser Ser Ile Asn Arg Arg Ala Ala Thr Leu Asn
            100                 105                 110
Asn Val Phe Trp Ile Lys Gly Pro Lys Thr Ile Tyr Ala Ile Lys Lys
        115                 120                 125
Leu Ala Phe Thr Thr Pro Ser Leu Leu Ser Gly Leu Lys Cys Pro Ile
    130                 135                 140
Phe Pro Lys Met Lys Ile Thr Lys Cys Leu
145                 150
<210>538
<211>145
<212>PRT
<213>Chlamydia trachomatis
<400>538
Asn Asp Leu Cys Asn Gln Lys Thr Cys Ile Tyr Tyr Ser Ile Ala Pro
  1                 5                  10                  15
Ile Gly Leu Glu Val Ser Tyr Phe Ser Glu Asp Glu Asn His Glu Val
            20                  25                  30
Ser Leu Thr Gln Phe Phe Asp Met Lys Glu Phe Pro Glu Leu Glu Phe
        35                  40                  45
Ser Tyr Tyr Asp Asn Pro Phe Ser Lys Ile Phe Ile Thr Gly Arg Asp
    50                  55                  60
Cys Ser Phe Ser Ala Phe Leu Gln Ala Ile Pro Trp His Ala Ala Lys
 65                  70                  75                  80
Phe Gly Leu Leu Thr Thr Val Pro Gln Arg Ile Leu Ser Leu Leu Thr
                85                  90                  95
Leu Phe Tyr Tyr Met Leu Ile Ser Pro Leu Leu Cys Ile Ala Ala Val
            100                 105                 110
Ile Leu Ser Ala His Leu Cys Leu Arg Phe His Arg Leu Pro Lys Ile
        115                 120                 125
Thr Trp Ala Tyr Leu Val Leu Trp Glu Pro Leu Ile Phe Ser Leu Leu
    130                 135                 140
Phe
145
<210>539
<211>491
<212>PRT
<213>Chlamydia trachomatis
<400>539
Arg Lys Leu Ser Ile Ser Xaa Gly Lys Ile His Glu Ser Met His Glu
  1                 5                  10                  15
Asn Asp Pro Leu Thr Lys Thr Ile Val Trp Asn Ser Asp Glu Ile Thr
            20                  25                  30
Lys Leu Ala Ser Ser Leu Val Tyr Thr Asn Asp Met Pro Ile Arg Leu
        35                  40                  45
Phe Tyr Gln Lys Ala Leu Thr Asn Met Ser Ala Glu Leu Thr Val Asn
    50                  55                  60
Val His Asn Ala Leu Met Ala Leu Phe Leu Ala Arg Tyr Glu Ala Thr
 65                  70                  75                  80
Ala Val Ser Gln Gln Pro Arg Lys Glu Asn Leu Ser Tyr Phe Asn Asp
                85                  90                  95
Phe Leu His Phe Leu Arg Lys Ala Ala Ala Leu Leu Asn Glu Lys Asp
            100                 105                 110
Leu Leu Asp Leu Gln Glu Lys His Ser Lys Ser Leu Val Ser Ser Leu
        115                 120                 125
Ser Ala Lys Leu Tyr Asp His Thr Ile Asp Phe Val Glu Ala Ala Asn
    130                 135                 140
Tyr Ile Phe Leu Asn Ile Ser Ser Lys Leu Gln Pro Glu Glu Gly Lys
145                 150                 155                 160
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Lys Pro Leu Ser Ala Gly Gln Tyr Val Ala Glu Ile Tyr Asp Glu Leu
                165                 170                 175
His Arg Leu Phe Ser Lys Tyr Pro Asn Gly Pro Leu Phe Lys Ala Ile
            180                 185                 190
Asp Arg Met Leu Asp Pro Tyr Leu Lys Glu Phe Asp Pro Ile Leu Leu
        195                 200                 205
Gly Ile Leu Pro Cys Leu Glu Gly Lys Leu Ile Gln Gly Asp Lys Glu
    210                 215                 220
Ile Lys Val Leu Arg Thr Pro Ser Pro Val Ser Gln Ser Ser Ile Leu
225                 230                 235                 240
Tyr Ala Asn Cys Asn Gly Glu Phe Leu His Phe Leu Asp Ala Lys Thr
                245                 250                 255
Cys Gln Gly Asp Lys Ile Leu Val Ile Ile Pro Arg Pro Trp Arg Pro
            260                 265                 270
Glu His Ala Thr Ser Arg Ser Arg Ile Ile Glu Glu Ser Leu Gln Asp
        275                 280                 285
Tyr Ser Ser Val Tyr Met Ser Ala Phe Pro Glu Pro Glu Asp Phe Leu
    290                 295                 300
Tyr Gly Leu Glu Gln Val His Gly Glu Leu Glu Thr Phe Ala Asp Phe
305                 310                 315                 320
Phe Ser Leu Val Gln Gln Glu Phe Phe Lys Pro Lys Ala Gln Gly Tyr
                325                 330                 335
Cys Val Leu Pro Glu Glu Met Lys Glu Arg Met Gly Val Phe Phe Arg
            340                 345                 350
Arg Tyr Leu Phe Leu Leu Leu Lys Asn Val Phe Phe Ser Lys Xaa Lys
        355                 360                 365
Ile Leu Phe Lys Asn Asp Lys Val Leu Leu Leu His Leu Ile Tyr Tyr
    370                 375                 380
Phe Val Val Phe Asn Leu Ile Glu Gln Leu Asp Pro Asn Thr Leu Val
385                 390                 395                 400
Ile Met Ser Lys Asp Gly Leu Asp Tyr Ala Ser Val Phe Val Ser Gly
                405                 410                 415
Phe Ala Phe Phe Glu Asn Arg Gly Asn Trp Asp Glu Asp Ser Leu Lys
            420                 425                 430
Arg Met Val Ala Arg Met Leu Ala Pro Thr Leu Val Ala Arg Asp Arg
        435                 440                 445
Leu Val Phe Ala Gln His Val Glu Leu Leu Ser Lys Phe Leu Asn Cys
    450                 455                 460
Leu Arg Lys Asn Arg His Asn Leu Lys Asp Leu Arg Thr Leu Phe Ser
465                 470                 475                 480
Tyr Asp Leu Glu Gly Trp Gln Phe Ser Gly Ile
                485                 490
<210>540
<211>190
<212>PRT
<213>Chlamydia trachomatis
<400>540
Lys Asp Tyr Phe Ser Leu Ala Leu Gly Gly Gly Met Glu Lys Thr Arg
  1                 5                  10                  15
Lys Phe Glu Lys Ala Leu Glu Asn Leu Glu Gln Leu Lys Lys Ile Ser
             20                  25                  30
Tyr Asp Tyr Ser Ser Gly Asn Ala Glu Ala Ser Ser His Asn Lys Ala
         35                  40                  45
Leu Ser Glu Met Lys Lys Ala Met His Tyr Ile Asp His Tyr Phe Lys
     50                  55                  60
Gln Ala Gly Ala Leu Ser Gln Lys Asp Val Asp Lys Val Ile Lys Glu
 65                  70                  75                  80
Thr Asp Phe Leu Ile Ala Gly Val Gln Asp Val Phe Ser Phe Leu Glu
                 85                  90                  95
Asp Arg Lys Glu Glu Val Tyr Arg Ser Leu Ser Gln Asp Tyr Arg His
            100                 105                 110
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Leu Asn His Thr Tyr Asp Val Thr Arg Glu His Leu Asn Asn Lys Met
        115                 120                 125
Val Glu Pro Lys Glu Ile Leu Asn Gly Ser Leu Glu Asn Cys Gln Asp
    130                 135                 140
Arg Glu Glu Phe Leu Asn Asn Leu Val Glu Val Lys Arg Asp Arg Ser
145                 150                 155                 160
Tyr Glu Leu Phe Tyr Met Ala Asn Glu Asp Asn Lys Arg Phe Tyr Thr
                165                 170                 175
Asp Ala Leu Ala Gln Ile Ile Tyr Lys Xaa Arg Glu Asp Pro
            180                 185                 190
<210>541
<211>194
<212>PRT
<213>Chlamydia trachomatis
<400>541
Phe Arg Arg Arg Ser Ser Cys Ser Thr Asp Ala Gly Tyr Phe Leu Phe
  1               5                  10                  15
Gly Ser His His Gly Leu Gly Ser Ala Pro Leu Asp Phe Ala Ser Arg
            20                  25                  30
Glu Leu Ala Arg Asn Lys Pro Pro Val Arg Ile Val Ala Pro Gly Glu
        35                  40                  45
Cys Phe Arg Asn Glu Asp Val Ser Ala Arg Ser His Val Ile Phe His
    50                  55                  60
Gln Val Glu Ala Phe Cys Val Asp Lys Asp Ile Ser Phe Ser Asp Leu
65                  70                  75                  80
Thr Ser Met Leu Ala Gly Phe Tyr His Ile Phe Phe Gly Arg Lys Val
                85                  90                  95
Glu Leu Arg Phe Arg His Ser Tyr Phe Pro Phe Val Glu Pro Gly Ile
            100                 105                 110
Glu Val Asp Ile Ser Cys Glu Cys His Gly Ala Gly Cys Ser Leu Cys
        115                 120                 125
Lys His Ser Gly Trp Leu Glu Val Ala Gly Ala Gly Met Ile His Pro
    130                 135                 140
Asn Val Leu Arg Lys Ala Ser Phe Asp Pro Glu Glu Tyr Ser Gly Tyr
145                 150                 155                 160
Ala Leu Gly Met Gly Ile Glu Arg Leu Ala Met Leu Lys Tyr Gly Ile
                165                 170                 175
Ser Asp Ile Arg Leu Phe Ser Glu Asn Asp Leu Arg Phe Leu Arg Gln
            180                 185                 190
Phe Ser

<210>542
<211>181
<212>PRT
<213>Chlamydia trachomatis
<400>542
Met Thr Ile Gln Glu Glu Leu Glu Ala Val Lys Gln Gln Phe Ser Cys
  1               5                  10                  15
Asp Val Ser Leu Ala His Ser Ser Lys Asp Leu Phe Asp Val Lys Val
            20                  25                  30
Lys Tyr Leu Gly Lys Lys Gly Ile Phe Arg Gly Phe Ala Asp Gln Leu
        35                  40                  45
Arg Lys Cys Pro Ile Glu Gln Lys Ala Thr Val Gly Ala Ser Ile Asn
    50                  55                  60
Ala Cys Lys Gln Tyr Val Glu Glu Val Leu Leu Glu Arg Gly Lys Ala
65                  70                  75                  80
Val Leu Ala Lys Glu Glu Ala Glu Glu Phe Leu Lys Glu Lys Ile Asp
                85                  90                  95
Ile Ser Leu Pro Gly Ser Glu Glu Ala Ala Leu Gly Gly Lys His Val
            100                 105                 110
Ile Lys Lys Val Leu Asp Asp Val Val Asp Ile Phe Val Arg Phe Gly
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        115                 120                 125
Phe Cys Val Arg Glu Ala Pro Asn Ile Glu Ser Glu Lys Asn Asn Phe
    130                 135                 140
Ser Leu Leu Asn Phe Glu Glu Asp His Pro Ala Arg Gln Met Gln Asp
145                 150                 155                 160
Thr Phe Tyr Leu Asp Pro Thr Thr Val Leu Val Arg Pro Arg Trp Ile
                165                 170                 175
Leu Arg Leu Gly Ser
            180
<210>543
<211>107
<212>PRT
<213>Chlamydia trachomatis
<400>543
Met Val Arg Ala Thr Gly Ser Val Ala Ser Arg Ser Arg Arg Lys Arg
  1               5                  10                  15
Val Leu Lys Gln Ala Lys Gly Phe Trp Gly Asp Arg Lys Gly His Phe
            20                  25                  30
Arg Gln Ser Arg Ser Ser Val Met Arg Ala Met Ala Phe Asn Tyr Met
        35                  40                  45
His Arg Lys Asp Arg Lys Gly Asp Phe Arg Ser Leu Trp Ile Thr Arg
    50                  55                  60
Leu Asn Val Ala Ser Arg Ile His Gly Leu Ser Tyr Ser Arg Leu Ile
65                  70                  75                  80
Asn Gly Leu Lys Gln Ala Gly Ile His Leu Xaa Glu Lys Cys Cys Leu
                85                  90                  95
Arg Trp Leu Phe Met Thr Leu Lys Gly Leu Leu
            100                 105
<210>544
<211>214
<212>PRT
<213>Chlamydia trachomatis
<400>544
Glu Lys Ser Leu Phe Leu Gly Lys Gly Gly Leu Trp Phe Phe Leu Gly
  1               5                  10                  15
Ser Pro Ser Ala Ile Thr Asn Phe Ser Arg Val Asp Val Ala Leu Asn
            20                  25                  30
Leu Arg Ile Asn Arg Gln Ile Arg Ala Pro Arg Val Arg Val Ile Gly
        35                  40                  45
Ser Ala Gly Glu Gln Leu Gly Ile Leu Ser Ile Lys Glu Ala Leu Asp
    50                  55                  60
Leu Ala Lys Glu Ala Asp Leu Asp Leu Val Glu Val Ala Ser Asn Ser
65                  70                  75                  80
Glu Pro Pro Val Cys Lys Ile Met Asp Tyr Gly Lys Tyr Arg Tyr Asp
                85                  90                  95
Ile Thr Lys Lys Glu Lys Asp Ser Lys Lys Ala Gln His Gln Val Arg
            100                 105                 110
Ile Lys Glu Val Lys Leu Lys Pro Asn Ile Asp Asp Asn Asp Xaa Leu
        115                 120                 125
Thr Lys Ala Lys Gln Ala Arg Ala Phe Ile Glu Lys Gly Asn Lys Val
    130                 135                 140
Lys Val Ser Cys Met Phe Arg Gly Arg Glu Leu Ala Tyr Pro Glu His
145                 150                 155                 160
Gly His Lys Val Val Gln Arg Met Cys Gln Gly Leu Glu Asp Ile Gly
                165                 170                 175
Phe Val Glu Ser Glu Pro Lys Leu Asn Gly Arg Ser Leu Ile Cys Val
            180                 185                 190
Ile Ala Pro Gly Thr Leu Lys Thr Lys Lys Lys Gln Glu Lys Val His
        195                 200                 205
Ala Gln Asp Glu Lys Gln
    210
```

<210>545
<211>301
<212>PRT
<213>Chlamydia trachomatis
<400>545

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Met Thr Asp Ser Phe Pro Phe Ser Val Gln Glu Ser Val Pro Leu Ser
  1               5                  10                  15
Arg Phe Ser Thr Phe Arg Ile Gly Gly Pro Ala Arg Tyr Phe Lys Glu
             20                  25                  30
Leu Thr Ser Leu Ser Glu Ala Leu Thr Val Phe Ser Tyr Leu His Thr
         35                  40                  45
His Pro Leu Pro Tyr Ile Ile Ile Gly Lys Gly Ser Asn Cys Leu Phe
     50                  55                  60
Asp Asp Gln Gly Phe Asp Gly Leu Val Leu Tyr Asn Asn Ile Gln Gly
 65                  70                  75                  80
Gln Glu Phe Leu Ser Asp Thr Gln Ile Lys Val Leu Ser Gly Ser Ser
                 85                  90                  95
Phe Ala Leu Leu Gly Lys Arg Leu Ser Ser Gln Gly Phe Ser Gly Leu
            100                 105                 110
Glu Phe Ala Val Gly Ile Pro Gly Thr Val Gly Gly Ala Val Phe Met
        115                 120                 125
Asn Ala Gly Thr Thr Leu Ala Asn Thr Ala Ser Ser Leu Ile Asn Val
    130                 135                 140
Glu Ile Ile Asp His Ser Gly Ile Leu Leu Ser Ile Pro Arg Glu Lys
145                 150                 155                 160
Leu Leu Phe Ser Tyr Arg Thr Ser Pro Phe Gln Lys Lys Pro Ala Phe
                165                 170                 175
Ile Ala Ser Ala Thr Phe Gln Leu Thr Lys Asp Pro Gln Ala Ala Lys
            180                 185                 190
Arg Ala Lys Ala Leu Ile Glu Glu Arg Ile Leu Lys Gln Pro Tyr Glu
        195                 200                 205
Tyr Pro Ser Ala Gly Cys Ile Phe Arg Asn Pro Glu Gly Leu Ser Ala
    210                 215                 220
Gly Ala Leu Ile Asp Arg Ala Gly Leu Lys Gly Leu Lys Ile Gly Gly
225                 230                 235                 240
Gly Gln Ile Ser Glu Lys His Gly Asn Phe Ile Ile Asn Thr Gly Asn
                245                 250                 255
Ala Cys Thr Ala Asp Ile Leu Glu Leu Ile Glu Ile Ile Gln Lys Ile
            260                 265                 270
Leu Lys Asn Lys Val Phe Pro Tyr Ile Lys Lys Ser Val Ser Ser Pro
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Phe Ala Ser Ser Leu Val Val Cys Glu Lys Glu Ile Thr
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<213>Chlamydia trachomatis
<400>546

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Leu Phe Ser Asn Ile Ile Lys Leu Ser His Ser Ile Phe Arg Gln Val
             20                  25                  30
Val Glu Pro Gly Asp Thr Ile Val Asp Ala Thr Cys Gly Asn Gly Lys
         35                  40                  45
Asp Ala Leu Phe Leu Ala Gln Leu Leu Arg Gly Lys Gly Arg Leu Val
     50                  55                  60
Val Tyr Asp Ile Gln Gln Glu Ala Leu Asp Arg Ala Thr Ala Asn Phe
 65                  70                  75                  80
Gln Ser Gly Leu Leu Ala Glu Glu Arg Ala Ile Ile Glu Met Lys Leu
                 85                  90                  95
Cys Ser His Glu Tyr Leu Gln Glu Gln Gly Ala Lys Leu Phe His Tyr
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            100                 105                 110
Asn Leu Gly Tyr Leu Pro Ser Gly Asp Lys Gln Ile Thr Thr Cys Ser
        115                 120                 125
Glu Ser Thr Val Thr Ser Ile Tyr Lys Ala Leu Glu Leu Val Ala Pro
    130                 135                 140
Ser Gly Ile Val Ser Val Val Cys Tyr Pro Gly His Gln Glu Gly Ala
145                 150                 155                 160
Ala Glu Leu Cys Cys Val Glu Gln Val Ala Thr Glu Leu Asp Pro Ser
                165                 170                 175
Met Trp Glu Val Cys Thr His Tyr Ser Val Asn Arg Arg Asn Ala Pro
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Arg Leu Phe Leu Phe Arg Arg Arg Gln Gly
        195                 200
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<400>547
Ser Gly Glu Val Trp Gly Trp Ser Arg Cys Ser Leu Ser His Thr Lys
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Tyr Phe Pro Val Lys Pro Gln Asp Leu Lys Leu Pro Tyr Phe Trp Glu
             20                  25                  30
Glu Arg Ser Pro Gln Ile Ala Asn His Val Phe Tyr Val Pro Asn Tyr
         35                  40                  45
Tyr Ser Arg Tyr Glu Glu Phe Val Ile Pro Thr Trp Gln Glu Leu Phe
     50                  55                  60
Ala Asn Asn Gly Pro Ile Cys Cys Glu Leu Cys Ser Gly Asn Gly Asp
 65                  70                  75                  80
Trp Val Val Glu Gln Ala Leu Lys Asp Ala Ser Val Asn Trp Ile Ala
                85                  90                  95
Val Glu Lys Arg Phe Asp Arg Val Arg Lys Ile Trp Ser Lys Met Gly
            100                 105                 110
Thr Tyr Arg Val Asn Asn Leu Leu Ile Val Cys Gly Glu Ala Gln Thr
        115                 120                 125
Phe Phe Ser His Tyr Val Ser Asp Ala Ser Phe Gln Lys Ile Val Val
    130                 135                 140
Asn Phe Pro Asp Pro Trp Pro Lys Phe Arg His Arg Lys His Arg Leu
145                 150                 155                 160
Phe Gln Asp Leu Phe Val Gln Asp Met Met Arg Thr Leu Val Val Gly
                165                 170                 175
Gly Gln Leu Thr Leu Ala Thr Asp Asp Tyr Asn Tyr Leu Val Asn Ala
            180                 185                 190
Ile Thr Val Met Leu Lys Tyr Leu Ser Pro Gly Leu Lys Ser Pro His
        195                 200                 205
Tyr Ile Asn Val Lys Asp Asn Tyr Gly Gly Ser Trp Phe Glu Asn Leu
    210                 215                 220
Trp Arg Ser Lys Gly Gln Glu Ile Phe Cys Thr Glu Phe Ile Lys Arg
225                 230                 235                 240
Val Gly Ile

<210>548
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<212>PRT
<213>Chlamydia trachomatis
<400>548
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Ser Lys Arg Leu Val Asn Cys Asn Gln Val Asp Val Asn Gln Leu Val
             20                  25                  30
Pro Ile Lys Tyr Lys Trp Ala Trp Glu His Tyr Leu Asn Gly Cys Ala
         35                  40                  45
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Asn Asn Trp Leu Pro Thr Glu Ile Pro Met Gly Lys Asp Ile Glu Leu
     50                  55                  60
Trp Lys Ser Asp Arg Leu Ser Glu Asp Glu Arg Arg Val Ile Leu Leu
 65                  70                  75                  80
Asn Leu Gly Phe Phe Ser Thr Ala Glu Ser Leu Val Gly Asn Asn Ile
                85                  90                  95
Val Leu Ala Ile Phe Lys His Val Thr Asn Pro Glu Ala Arg Gln Tyr
            100                 105                 110
Leu Leu Arg Gln Ala Phe Glu Glu Ala Val His Thr His Thr Phe Leu
        115                 120                 125
Tyr Ile Cys Glu Ser Leu Gly Leu Asp Glu Lys Glu Ile Phe Asn Ala
    130                 135                 140
Tyr Asn Glu Arg Ala Ala Ile Lys Ala Lys Asp Asp Phe Gln Met Glu
145                 150                 155                 160
Ile Thr Gly Lys Val Leu Asp Pro Asn Phe Arg Thr Asp Ser Val Glu
                165                 170                 175
Gly Leu Gln Glu Phe Val Lys Asn Leu Val Gly Tyr Tyr Ile Ile Met
            180                 185                 190
Glu Gly Ile Phe Phe Tyr Ser Gly Phe Val Met Ile Leu Ser Phe His
        195                 200                 205
Arg Gln Asn Lys Met Ile Gly Ile Gly Glu Gln Tyr Gln Tyr Ile Leu
    210                 215                 220
Arg Asp Glu Thr Ile His Leu Asn Phe Gly Ile Asp Leu Ile Asn Gly
225                 230                 235                 240
Ile Lys Glu Glu Asn Pro Glu Ile Trp Thr Pro Glu Leu Gln Gln Glu
                245                 250                 255
Ile Val Glu Leu Ile Lys Arg Ala Val Asp Leu Glu Ile Glu Tyr Ala
            260                 265                 270
Gln Asp Cys Leu Pro Arg Gly Ile Leu Gly Leu Arg Ala Ser Met Phe
        275                 280                 285
Ile Asp Tyr Val Gln His Ile Ala Asp Arg Arg Leu Glu Arg Ile Gly
    290                 295                 300
Leu Lys Pro Ile Tyr His Thr Lys Asn Pro Phe Pro Trp Met Ser Glu
305                 310                 315                 320
Thr Ile Asp Leu Asn Lys Glu Lys Asn Phe Phe Glu Thr Arg Asp Thr
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Glu Tyr Gln His Ala Ala Ser Leu Thr Trp
            340                 345
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Arg Arg Leu Cys Phe Lys Ile Glu Asn Asn Ala Tyr Ser Met Phe Thr
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Arg Ile Val Met Val Asp Leu Gln Glu Lys Gln Cys Thr Ile Val Lys
            20                  25                  30
Arg Asn Gly Met Phe Val Pro Phe Asp Arg Asn Arg Ile Phe Gln Ala
        35                  40                  45
Leu Glu Ala Ala Phe Arg Asp Thr Arg Arg Ile Asp Asp His Met Pro
     50                  55                  60
Leu Pro Glu Asp Leu Glu Ser Ser Ile Arg Ser Ile Thr His Gln Val
 65                  70                  75                  80
Val Lys Glu Val Val Gln Lys Ile Thr Asp Gly Gln Val Val Thr Val
                85                  90                  95
Glu Arg Ile Gln Asp Met Val Glu Ser Gln Leu Tyr Val Asn Gly Leu
            100                 105                 110
Gln Asp Val Ala Arg Asp Tyr Ile Val Tyr Arg Asp Asp Arg Lys Ala
        115                 120                 125
His Arg Lys Lys Ser Trp Gln Ser Leu Ser Val Val Arg Arg Cys Gly
    130                 135                 140
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09512-4-US-2

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Thr Val Val His Phe Asn Pro Met Lys Ile Ser Ala Ala Leu Glu Lys
145                 150                 155                 160
Ala Phe Arg Ala Thr Asp Lys Thr Glu Gly Met Thr Pro Ser Ser Val
                165                 170                 175
Arg Glu Glu Ile Asn Ala Leu Thr Gln Asn Ile Val Ala Glu Ile Glu
            180                 185                 190
Glu Cys Cys Ser Gln Gln Asp Arg Arg Ile Asp Ile Glu Lys Ile Gln
        195                 200                 205
Asp Ile Val Glu Gln Gln Leu Met Val Val Gly His Tyr Ala Ile Ala
    210                 215                 220
Lys Asn Tyr Ile Leu Tyr Arg Glu Ala Arg Ala Arg Val Arg Asp Asn
225                 230                 235                 240
Arg Glu Glu Asp Gly Ser Thr Glu Lys Thr Ile Ala Glu Glu Ala Phe
                245                 250                 255
Glu Val Leu Ser Lys Asp Gly Ser Thr Tyr Thr Met Thr His Ser Gln
            260                 265                 270
Leu Leu Ala His Leu Ala Arg Ala Cys Ser Arg Phe Pro Glu Thr Thr
        275                 280                 285
Asp Ala Ala Leu Leu Thr Asp Met Ala Phe Ala Asn Phe Tyr Ser Gly
    290                 295                 300
Ile Lys Glu Ser Glu Val Val Leu Ala Cys Ile Met Ala Ala Arg Ala
305                 310                 315                 320
Asn Ile Glu Lys Glu Pro Asp Tyr Ala Leu Val Ala Ala Glu Leu Leu
                325                 330                 335
Leu Asp Val Val Tyr Lys Glu Ala Leu Gly Lys Ser Lys Tyr Ala Glu
            340                 345                 350
Asp Leu Glu Gln Ala His Arg Asp His Phe Lys Arg Tyr Ile Ala Glu
        355                 360                 365
Gly Asp Thr Tyr Arg Leu Asn Ala Glu Leu Lys His Leu Phe Asp Leu
    370                 375                 380
Asp Ala Leu Ala Asp Ala Met Asp Leu Ser Arg Asp Leu Gln Phe Ser
385                 390                 395                 400
Tyr Met Gly Ile Gln Asn Leu Tyr Asp Arg Tyr Phe Asn His His Glu
                405                 410                 415
Gly Cys Arg Leu Glu Thr Pro Gln Ile Phe Trp Met Arg Val Ala Met
            420                 425                 430
Gly Leu Ala Leu Asn Glu Gln Asp Lys Thr Ser Trp Ala Ile Thr Phe
        435                 440                 445
Tyr Asn Leu Leu Ser Thr Phe Arg Tyr Thr Pro Ala Thr Pro Thr Leu
    450                 455                 460
Phe Asn Ser Gly Met Arg His Ser Gln Leu Ser Ser Cys Tyr Leu Ser
465                 470                 475                 480
Thr Val Gln Asp Asp Leu Val Asn Ile Tyr Lys Val Ile Ala Asp Asn
                485                 490                 495
Ala Met Leu Ser Lys Trp Ala Gly Gly Ile Gly Asn Asp Trp Thr Ala
            500                 505                 510
Ile Arg Ala Thr Gly Ala Leu Ile Lys Gly Thr Asn Gly Arg Ser Gln
        515                 520                 525
Gly Val Ile Pro Phe Ile Lys Val Thr Asn Asp Thr Ala Val Ala Val
    530                 535                 540
Asn Gln Gly Gly Lys Arg Lys Gly Ala Val Cys Val Tyr Leu Glu Val
545                 550                 555                 560
Trp His Leu Asp Tyr Glu Asp Phe Leu Glu Leu Arg Lys Asn Thr Gly
                565                 570                 575
Asp Glu Arg Arg Arg Ala His Asp Val Asn Thr Ala Ser Trp Ile Pro
            580                 585                 590
Asp Leu Phe Phe Lys Arg Leu Gln Gln Lys Gly Thr Trp Thr Leu Phe
        595                 600                 605
Ser Pro Asp Asp Val Pro Gly Leu His Asp Ala Tyr Gly Glu Glu Phe
    610                 615                 620
Glu Arg Leu Tyr Glu Glu Tyr Glu Arg Lys Val Asp Thr Gly Glu Ile
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Docket No. 50P4744

625 630 635 640
Arg Leu Phe Lys Lys Val Glu Ala Glu Asp Leu Trp Arg Lys Met Leu
645 650 655
Ser Met Val Phe Glu Thr Gly His Pro Trp Met Thr Phe Lys Asp Pro
660 665 670
Ser Asn Ile Arg Ser Ala Gln Asp His Lys Gly Val Val Arg Cys Ser
675 680 685
Asn Leu Cys Thr Glu Ile Leu Leu Asn Cys Ser Glu Thr Glu Thr Ala
690 695 700
Val Cys Asn Leu Gly Ser Ile Asn Leu Val Gln His Ile Val Gly Asp
705 710 715 720
Gly Leu Asp Glu Glu Lys Leu Ser Glu Thr Ile Ser Ile Ala Val Arg
725 730 735
Met Leu Asp Asn Val Ile Asp Ile Asn Phe Tyr Pro Thr Lys Glu Ala
740 745 750
Lys Glu Ala Asn Phe Ala His Arg Ala Ile Gly Leu Gly Val Met Gly
755 760 765
Phe Gln Asp Ala Leu Tyr Lys Leu Asp Ile Ser Tyr Ala Ser Gln Glu
770 775 780
Ala Val Glu Phe Ala Asp Tyr Ser Ser Glu Leu Ile Ser Tyr Tyr Ala
785 790 795 800
Ile Gln Ala Ser Cys Leu Leu Ala Lys Glu Arg Gly Thr Tyr Ser Ser
805 810 815
Tyr Lys Gly Ser Lys Trp Asp Arg Gly Leu Leu Pro Ile Asp Thr Ile
820 825 830
Gln Leu Leu Ala Asn Tyr Arg Gly Glu Ala Asn Leu Gln Met Asp Thr
835 840 845
Ser Ser Arg Lys Asp Trp Glu Pro Ile Arg Ser Leu Val Lys Glu His
850 855 860
Gly Met Arg His Cys Gln Leu Met Ala Ile Ala Pro Thr Ala Thr Ile
865 870 875 880
Ser Asn Ile Ile Gly Val Thr Gln Ser Ile Glu Pro Thr Tyr Lys His
885 890 895
Leu Phe Val Lys Ser Asn Leu Ser Gly Glu Phe Thr Ile Pro Asn Val
900 905 910
Tyr Leu Ile Glu Lys Leu Lys Lys Leu Gly Ile Trp Asp Ala Asp Met
915 920 925
Leu Asp Asp Leu Lys Tyr Phe Asp Gly Ser Leu Leu Glu Ile Glu Arg
930 935 940
Ile Pro Asp His Leu Lys His Ile Phe Leu Thr Ala Phe Glu Ile Glu
945 950 955 960
Pro Glu Trp Ile Ile Glu Cys Ala Ser Arg Arg Gln Lys Trp Ile Asp
965 970 975
Met Gly Gln Ser Leu Asn Leu Tyr Leu Ala Gln Pro Asp Gly Lys Lys
980 985 990
Leu Ser Asn Met Tyr Leu Thr Ala Trp Lys Lys Gly Leu Lys Thr Thr
995 1000 1005
Tyr Tyr Leu Arg Ser Ser Ser Ala Thr Thr Val Glu Lys Ser Phe Val
1010 1015 1020
Asp Ile Asn Lys Arg Gly Ile Gln Pro Arg Trp Met Lys Asn Lys Ser
1025 1030 1035 1040
Ala Ser Ala Gly Ile Ile Val Glu Arg Ala Lys Lys Ala Pro Val Cys
1045 1050 1055
Ser Leu Glu Glu Gly Cys Glu Ala Cys Gln
1060 1065

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<212>PRT
<213>Chlamydia trachomatis
<400>550
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Pro Asn Ala Ile Thr Ala Phe Gly Leu Cys Cys Gly Leu Phe Ile Ile
             20                  25                  30
Phe Lys Ser Val Leu Lys Thr Ser Ser Ser Leu Glu Leu Met His Arg
         35                  40                  45
Leu Gln Gly Leu Ser Leu Leu Leu Ile Ser Ala Met Ile Ala Asp Phe
     50                  55                  60
Ser Asp Gly Ala Val Ala Arg Ile Met Lys Ala Glu Ser Ala Phe Gly
 65                  70                  75                  80
Ala His Phe Asp Ser Leu Ser Asp Ala Ile Thr Phe Gly Ile Ala Pro
                 85                  90                  95
Pro Leu Ile Ala Ile Lys Ser Leu Asn Gly Glu Tyr Gly Gly Thr Phe
            100                 105                 110
Cys Ser Ser Phe Leu Leu Val Thr Cys Ile Ile Tyr Ser Leu Cys Gly
        115                 120                 125
Val Leu Arg Leu Val Arg Tyr Asn Leu Phe Ala Ala Thr Gly Glu Lys
    130                 135                 140
Ala Thr Thr Phe Thr Gly Leu Pro Ile Pro Ala Ala Ala Ala Cys Val
145                 150                 155                 160
Val Ser Leu Gly Val Leu Leu Ala Ser Asp Thr Leu Asn Ser Leu Pro
                165                 170                 175
Glu Arg Ala Arg Val Leu Leu Val Ser Leu Gly Leu Leu Leu Ser Gly
            180                 185                 190
Cys Leu Met Ile Ser Thr Trp Arg Phe Pro Gly Leu Lys His Phe His
        195                 200                 205
Phe Arg Val Ser Ser Ser Leu Leu Val Leu Gly Ile Gly Leu Val Ala
    210                 215                 220
Cys Leu Phe Phe Ser Gly Leu Val Asp His Phe Thr Gln Val Phe Xaa
225                 230                 235                 240
Leu Val Ser Trp Leu Tyr Val Leu Val Val Ala Pro Val Phe Pro Phe
                245                 250                 255
Ile Asn Lys Arg Ser Ser Ser
            260
<210>551
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<213>Chlamydia trachomatis
<400>551
Tyr Met Gly Val Phe Ala Ile Ser Leu Leu Ser Gln Thr Val Cys Leu
  1               5                  10                  15
Tyr Phe Thr Phe Phe Ser Leu Gly Ile Ala Leu Gly Val Leu Phe Ser
             20                  25                  30
Phe Lys Ile Phe Thr Lys Lys Leu Ser Arg Gln Tyr Glu Ile Ile Arg
         35                  40                  45
Asp Leu Glu His Ser Lys Ala Ile Leu Gln Met Ser Leu Asp Thr Arg
     50                  55                  60
Arg Ser Gln Glu Gln Ile Met Glu Glu Phe Ser His Lys Leu Thr Ser
 65                  70                  75                  80
Val Ser Gln Ala Phe Ala Arg Asp Met Lys Thr Glu Ser Gln Glu Phe
                 85                  90                  95
Phe Ser Glu Lys Thr Gln Ala Ile Thr Ser Val Leu Ala Pro Val His
            100                 105                 110
Asn Thr Leu Ser Ala Phe Lys Gln Asn Leu Glu Asn Phe Glu Thr Lys
        115                 120                 125
Gln Ala Glu Asp Arg Gly Val Ser Lys Asn Asn Ser Leu Asn Tyr Ser
    130                 135                 140
Leu Gln Asn Arg Ser
145
<210>552
<211>300
<212>PRT
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<213>Chlamydia trachomatis
<400>552

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Ala Ser Arg Arg Pro Arg Ser Leu Lys Glu Gln Leu Ser Gln Leu Leu
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Thr Ala Glu Gln Lys Leu Glu Arg Glu Thr Gln Ala Leu Thr Asn Ile
             20                  25                  30
Leu Lys His Pro Gly Ser Arg Gly Arg Trp Gly Glu Ile Gln Leu Glu
         35                  40                  45
Arg Ile Leu Glu Ile Ser Gly Met Leu Lys Tyr Cys Asp Tyr Ser Thr
     50                  55                  60
Gln Thr Val Asp Ser Ser Glu Ser Ser Ser Arg Ala Asp Ile Val Ile
 65                  70                  75                  80
Arg Leu Pro Gln Asn Arg Ser Leu Val Ile Asp Ala Lys Thr Pro Phe
                 85                  90                  95
Ser Glu Glu Tyr Leu Thr Asp Asn His Ala Asp Pro Thr Asp Leu Val
            100                 105                 110
Lys Lys Ile Lys Asp His Ile Lys Thr Leu Lys Thr Lys Ser Tyr Trp
        115                 120                 125
Asp Lys Phe Glu Gln Ser Pro Glu Phe Val Ile Leu Phe Leu Pro Gly
    130                 135                 140
Glu Ser Leu Phe Asn Asp Ala Ile Arg Cys Ala Pro Glu Leu Met Asp
145                 150                 155                 160
Tyr Ala Gly Gln Ser Asn Val Ile Leu Ser Ser Pro Val Thr Leu Met
                165                 170                 175
Ala Leu Leu Lys Thr Val Thr His Val Trp Lys Gln Glu Asn Leu Gln
            180                 185                 190
Asn Gln Ile Arg Glu Ile Gly Gln Leu Gly Lys Asp Leu Tyr Gln Arg
        195                 200                 205
Met His Lys Leu Phe Asp His Phe His Lys Val Gly Lys His Leu Gly
    210                 215                 220
Gln Ala Val His Ser Tyr Asn Asp Met Ser Ser Ser Leu Ser Ala Arg
225                 230                 235                 240
Val Leu Pro Ile Leu Arg Thr Phe Asp Lys Leu Glu Leu Ser Ser Ser
                245                 250                 255
His Asn Lys Ile Glu Ala Leu Ser Gln Val Ser Thr Leu Pro His Ser
            260                 265                 270
Pro Lys Val Pro Cys Pro Glu Ser Asp Leu Ala Glu Cys Leu Ser Pro
        275                 280                 285
Glu Ala Ser Tyr Leu Lys Pro Pro Ser Ser Asn Gln
    290                 295                 300
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<212>PRT
<213>Chlamydia trachomatis
<400>553

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Ala Phe Arg Ser Ile Ser Val Ala Arg Arg Arg Leu Asn Lys Val Leu
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Pro Leu Phe Ala Leu Asp Lys Val Pro Ser Leu Gly Lys Glu Phe Val
             20                  25                  30
Leu Glu Lys Glu Val Phe Ala Glu Gly Glu Val Leu His His Asp Cys
         35                  40                  45
Phe Thr Asn Asp Ile Ile Phe Val Glu Leu Val Phe Asp Leu Pro Ala
     50                  55                  60
Leu Ser Ala Glu Glu Leu Pro Trp Leu Arg Leu Leu Val Phe Val Leu
 65                  70                  75                  80
Leu Gln Leu Gly Ser Gly Asn Arg Ser Tyr Lys Glu His Leu Glu Phe
                 85                  90                  95
Leu Leu Glu His Thr Gly Gly Val Asp Val Leu Tyr Glu Phe Ser Ser
            100                 105                 110
Gln Ala Thr Asp Thr Asp Arg Leu Ser Pro Ser Ile Ser Ile Arg Gly
        115                 120                 125
```

```
Lys Ala Leu Ile Ser Lys Ala Glu Tyr Leu Phe Gln Val Ile Arg Glu
    130                 135                 140
Thr Leu Thr Thr Val Asp Phe Ser Asp Ile Ala Arg Leu Lys Glu Leu
145                 150                 155                 160
Leu Met Gln His Ala Glu Ser Leu Thr Asn Ser Val Arg Asn Ser Pro
                165                 170                 175
Met Gly Tyr Ala Val Ser Leu Ala Cys Cys Asn Lys Ser Ile Ala Gly
            180                 185                 190
Gly Leu Ala Tyr Gln Met Ala Gly Leu Pro Tyr Val Lys Tyr Ile Arg
        195                 200                 205
Glu Leu Leu Ser Asn Phe Asp Ser Gln Ala Gln Glu Ile Ile Asp Arg
    210                 215                 220
Leu Gln Thr Leu Tyr Lys Lys Cys Phe Val Gly Arg Arg Gln Leu Val
225                 230                 235                 240
Ile Ser Ser Ser Lys Ala Asn Tyr Gln Val Leu His Asp Gln Arg Phe
                245                 250                 255
Phe Gly Leu Leu Asp Glu Arg Leu Glu Gly Gly Glu Leu Trp Lys Asn
            260                 265                 270
Pro Val Leu Asp Val Val Lys Asp Ser Arg Gly Ile Val Ile Pro Ala
        275                 280                 285
Arg Gly Ala Tyr Asn Val Leu Ala Phe Pro Leu Gly Ser Leu Ala Tyr
    290                 295                 300
Asp His Pro Asp Ala Ala Val Leu Ser Val Ala Ala Glu Val Leu Gly
305                 310                 315                 320
Asn Val Ile Leu His Ala Lys Ile Arg Glu Gln Gly Gly Ala Tyr Gly
                325                 330                 335
Ser Gly Ala Ser Ala Asn Leu Gly Arg Gly Ala Phe Tyr Cys Tyr Ser
            340                 345                 350
Tyr Arg Asp Pro Glu Val Ala Thr Thr Tyr Gln Val Leu Leu Gln Gly
        355                 360                 365
Ile Arg Asp Met Ala Ala Gly Asp Phe Ser Glu Glu Asp Val His Glu
    370                 375                 380
Gly Ile Leu Gly Val Ile Gln Asn Leu Asp Asp Pro Ile Ser Pro Gly
385                 390                 395                 400
Ser Arg Gly Ser Ala Ser Tyr Tyr Arg Ser Arg Ser Gly Lys Val Pro
                405                 410                 415
Phe Val Arg Gln Ala Phe Arg Gln Ala Val Leu Ser Thr Thr Lys Ala
            420                 425                 430
Gln Ile Cys Glu Val Val Arg Asn Arg Leu Glu Gly Cys Leu Ser Glu
        435                 440                 445
Ala Ser Phe Val Ser Phe Ala Gly Glu Glu Met Leu Gln Lys Ser Ala
    450                 455                 460
Lys Glu Leu Asn Glu Ala Phe Gln Ile Glu Ala Ala Phe
465                 470                 475
<210>554
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<212>PRT
<213>Chlamydia trachomatis
<400>554
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Phe Phe Ile Phe Met Gly Ile Leu Asn Leu Gly Arg His Leu Asp Phe
            20                  25                  30
Leu Glu Glu Lys Leu Leu Arg Arg Val Gly Lys Val Glu Lys Gln Ser
        35                  40                  45
Val Thr Leu Pro Leu Gln Lys Arg Phe Lys Glu Pro Val Arg Val Ile
    50                  55                  60
Glu Arg Tyr Pro Ser Asp Gly Ala Asp Glu Asp Lys Val Leu Phe Gly
65                  70                  75                  80
Leu Ala Trp Leu Thr Cys Ser Ile Phe Asp Gln Gln Asp Leu Leu Ala
                85                  90                  95
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Leu His Val Leu Asp Leu Val Leu Met Gly Thr Asp Ala Ala Pro Leu
            100                 105                 110
Lys Ser Arg Leu Leu Lys Ser Gly Leu Cys Lys Gln Val Asp Met Ser
        115                 120                 125
Ile Asp Ser Glu Leu His Glu Ile Pro Val Tyr Ile Val Cys Lys Gly
    130                 135                 140
Cys Ser His Ser Gly Ser Gln Lys Leu Glu Ser Leu Ile Leu Ala Ser
145                 150                 155                 160
Leu Glu Glu Ile Leu Gln Glu Gly Ile Pro Met His Leu Val Glu Gly
                165                 170                 175
Ala Val His Gln Leu Glu Leu Ala Arg Lys Glu Ile Ala Gly Tyr Ser
            180                 185                 190
Ile Pro Tyr Gly Leu Ser Leu Phe Phe Arg Ala Gly Leu Leu Arg Gln
        195                 200                 205
His Gly Gly Lys Ala Glu Asp Gly Leu Arg Ile His Thr Leu Phe Ala
    210                 215                 220
Asn Leu Arg Glu Asn Ile Gln Lys Pro Asp Tyr Leu Pro Arg Leu Val
225                 230                 235                 240
Arg Lys Tyr Phe Leu Asp Asn Pro His Tyr Ala Arg Val Ile Phe Leu
                245                 250                 255
Pro Asp Ser Gln Leu Ile Ala Gln Glu Asn Lys Glu Glu Arg Asn Val
            260                 265                 270
Leu His Thr Ile Gln Met Gln Met Ser Glu Glu Glu Leu Glu Arg Val
        275                 280                 285
Glu Ala Val Ser Lys Arg Leu Glu Ala Tyr Gln Ser Gln Glu Glu Asp
    290                 295                 300
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<400>555
Trp Ser Gly Ser Arg Thr Arg Ala Tyr Gly Leu Met Xaa Xaa Ser Glu
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Ser Tyr Pro Ile Arg Asp Pro Phe Phe Ser Met Thr Arg Arg Ser Leu
             20                  25                  30
Asn Thr Phe Met Asn Ala Phe Thr Gly Ala Asp Phe Thr Cys Tyr Pro
         35                  40                  45
Ala Ala Ser Gln Ile Pro Glu Asp Phe Tyr Asn Leu Leu Ser Val Tyr
     50                  55                  60
Ile Asp Ala Val Phe His Pro Leu Leu Thr Glu Asn Ser Phe Leu Gln
 65                  70                  75                  80
Glu Ala Trp Arg Tyr Glu Arg Thr Glu Glu Gly Asn Leu Ser Tyr Thr
                 85                  90                  95
Gly Ile Val Phe Asn Glu Met Lys Gly Ala Leu Met Ser Gly Glu Ser
            100                 105                 110
Arg Leu Ser Glu Val Arg Met Pro His Cys Ser Leu Arg Ser Leu Thr
        115                 120                 125
Val

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<212>PRT
<213>Chlamydia trachomatis
<400>556
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  1                 5                  10                  15
Val Lys Leu Ser Gln Asp Leu Pro Glu Ile Glu Ser Lys Leu Ile Glu
             20                  25                  30
Val Glu His Thr Pro Thr Gly Ala Thr Ile Met Met Ile Val Asn Asp
         35                  40                  45
Asp Asp Glu Asn Val Phe Asn Ile Ser Phe Arg Thr Cys Pro Gln Asp
```

```
     50                  55                  60
Ser Ser Gly Val Ala His Val Leu Glu His Met Ala Leu Cys Xaa Gly
 65                  70                  75                  80
Leu Arg Val Thr Gln Phe Gly Ile Leu Phe Ser Gln
                 85                  90
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Val Cys Cys Tyr Arg Thr Ser Val Phe Ser Ser Pro Met Leu Gly Tyr
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Ser Ala Ser Lys Lys Asp Ser Lys Ala Asp Ile Cys Leu Ala Val Ser
             20                  25                  30
Ser Gly Asp Gln Glu Val Ser Gln Glu Asp Leu Leu Lys Glu Val Ser
         35                  40                  45
Arg Gly Phe Ser Arg Val Ala Ala Lys Ala Thr Pro Gly Val Val Tyr
     50                  55                  60
Ile Glu Asn Phe Pro Lys Thr Gly Asn Gln Ala Ile Ala Ser Pro Gly
 65                  70                  75                  80
Asn Lys Arg Gly Phe Gln Glu Asn Pro Phe Asp Tyr Phe Asn Asp Glu
                 85                  90                  95
Phe Phe Asn Arg Phe Phe Gly Leu Pro Ser Tyr Arg Glu Gln Gln Arg
            100                 105                 110
Pro Gln Gln Arg Asp Ala Val Arg Gly Thr Gly Phe Ile Val Ser Glu
        115                 120                 125
Asp Gly Tyr Val Val Thr Asn His His Val Val Glu Asp Ala Gly Lys
    130                 135                 140
Ile His Val Thr Leu His Asp Gly Gln Lys Tyr Thr Ala Lys Ile Val
145                 150                 155                 160
Gly Leu Asp Pro Lys Thr Asp Leu Ala Val Ile Lys Ile Gln Ala Glu
                165                 170                 175
Lys Leu Pro Phe Leu Thr Phe Gly Asn Ser Asp Gln Leu Gln Ile Gly
            180                 185                 190
Asp Trp Ala Ile Ala Ile Gly Asn Pro Phe Gly Leu Gln Ala Thr Val
        195                 200                 205
Thr Val Gly Val Val Ser Ala Lys Gly Arg Asn Gln Leu His Ile Val
    210                 215                 220
Asp Phe Glu Asp Phe Ile Gln Thr Asp Ala Ala Ile Asn Pro Gly Asn
225                 230                 235                 240
Ser Gly Gly Pro Leu Leu Asn Ile Asn Gly Gln Val Ile Gly Val Asn
                245                 250                 255
Thr Ala Ile Val Ser Gly Ser Gly Gly Tyr Ile Gly Ile Gly Phe Ala
            260                 265                 270
Ile Pro Ser Leu Met Ala Lys Arg Val Ile Asp Gln Leu Ile Ser Asp
        275                 280                 285
Gly Gln Val Thr Arg Gly Phe Leu Gly Val Thr Leu Gln Pro Ile Asp
    290                 295                 300
Ser Glu Leu Ala Thr Cys Tyr Lys Leu Glu Lys Val Tyr Gly Ala Leu
305                 310                 315                 320
Val Thr Asp Val Val Lys Gly Ser Pro Ala Glu Lys Ala Gly Leu Arg
                325                 330                 335
Gln Glu Asp Val Ile Val Ala Tyr Asn Gly Lys Glu Val Glu Ser Leu
            340                 345                 350
Ser Ala Leu Arg Asn Ala Ile Ser Leu Met Met Pro Gly Thr Arg Val
        355                 360                 365
Ile Leu Lys Ile Val Arg Glu Gly Lys Thr Ile Glu Ile Pro Val Thr
    370                 375                 380
Val Thr Gln Ile Pro Thr Glu Asp Gly Val Ser Ala Leu Gln Lys Met
385                 390                 395                 400
Gly Val Arg Val Gln Asn Ile Thr Pro Glu Ile Cys Lys Lys Leu Gly
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405 410 415
Leu Ala Ala Asp Thr Arg Gly Ile Leu Val Val Ala Val Glu Ala Gly
420 425 430
Ser Pro Ala Ala Ser Ala Gly Val Ala Pro Gly Gln Leu Ile Leu Ala
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Val Asn Arg Gln Arg Val Ala Ser Val Glu Glu Leu Asn Gln Val Leu
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Lys Asn Ser Lys Gly Glu Asn Val Leu Leu Met Val Ser Gln Gly Asp
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Val Val Arg Phe Ile Val Leu Lys Ser Asp Glu
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20 25 30
Tyr Thr Met Cys Arg Phe Thr Asp Leu Thr Phe Val Gly Gly Val Thr
35 40 45
Pro Gly Lys Gly Gly Ser Gln Phe Leu Asp Leu Pro Ile Phe Asp Ser
50 55 60
Val Leu Glu Ala Lys Arg Ala Thr Gly Cys Arg Ala Ser Met Ile Phe
65 70 75 80
Val Pro Pro Pro Phe Ala Ala Glu Ala Ile Phe Glu Ala Glu Asp Xaa
85 90 95
Gly Ile Glu Leu Ile Val Cys Ile Thr Glu Gly Ile Pro Ile Lys Asp
100 105 110
Met Leu Glu Val Ala Ser Leu Met Glu Lys Ser Ala Ser Ser Leu Ile
115 120 125
Gly Pro Asn Cys Pro Gly Val Ile Lys Pro Gly Val Cys Lys Ile Gly
130 135 140
Ile Met Pro Gly Tyr Ile His Leu Pro Gly Lys Val Gly Val Val Ser
145 150 155 160
Xaa Ser Gly Thr Leu Thr Tyr Glu Ala Val Trp Gln Leu Thr Gln Arg
165 170 175
Lys Ile Gly Gln Ser Val Cys Ile Gly Ile Gly Gly Asp Pro Leu Asn
180 185 190
Gly Thr Ser Phe Ile Asp Ala Leu Gln Glu Phe Glu Lys Asp Ser Gln
195 200 205
Thr Glu Ala Val Leu Met Ile Gly Glu Ile Gly Gly Ser Ala Glu Glu
210 215 220
Glu Ala Ala Asp Trp Ile Arg Gln His Ser Ser Lys Pro Val Ile Ala
225 230 235 240
Phe Ile Ala Gly Ala Thr Ala Pro Lys Gly Lys Arg Met Gly His Ala
245 250 255
Gly Ala Ile Ile Ser Gly Lys Ser Gly Asp Ala Phe Ser Lys Gln Glu
260 265 270
Ala Leu Arg Gln Ala Gly Val Thr Val Val Glu Phe Pro Ala Leu Ile
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Gly Glu Ala Val Ala Ser Val Leu Lys Pro Arg
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35 40 45
His Thr Leu Cys Pro Ile Phe Leu Cys Val Ser Cys Gln Thr Ala Ser
50 55 60
Tyr Val Ser Val Pro Asp Xaa Glu Thr Thr Pro Thr Phe Pro Gly Arg
65 70 75 80
Trp Ile Tyr Pro Gly Met Met Pro Ile Leu Gln Thr Pro Gly Leu Ile
85 90 95
Thr Pro Gly Gln Phe Gly Pro Ile Lys Glu Leu Ala Leu Phe Ser Ile
100 105 110
Arg Glu Ala Thr Ser Ser Ile Ser Leu Ile Gly Ile Pro Ser Val Ile
115 120 125
Gln Thr Ile Ser Ser Ile Pro Xaa Ser Ser Ala Ser Lys Met Ala Ser
130 135 140
Ala Ala Asn Gly Gly Gly Thr Lys Ile Ile Glu Ala Arg Gln Pro Val
145 150 155 160
Ala Arg Leu Ala Ser Lys Thr Glu Ser Lys Met Gly Lys Ser Lys Asn
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Trp Leu Pro Pro Phe Pro Gly Val Thr Pro Pro Thr Lys Val Arg Ser
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Val Lys Arg His Ile Val
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Cys Leu Val Asn Gly Ala Gly Leu Ala Met Ser Thr Leu Asp Ile Leu
20 25 30
Lys Leu Tyr Gly Gly Ser Ala Ala Asn Phe Leu Asp Val Gly Gly Ser
35 40 45
Ala Ser Glu Lys Gln Ile Gln Glu Ala Ile Ser Leu Val Leu Ser Asp
50 55 60
Lys Ser Val Arg Val Leu Phe Ile His Ile Phe Gly Gly Ile Met Asp
65 70 75 80
Cys Ala Val Val Ala Ser Gly Leu Val Ser Ala Met Gln Gly Gln Lys
85 90 95
Glu Thr Ile Pro Thr Val Ile Arg Leu Glu Gly Thr Asn Val Asp Lys
100 105 110
Gly Lys Gly Met Ile Ile Asn Ala Gly Ile Pro Cys Glu Phe Val Thr
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Ser Met Ser Glu Gly Ala Glu Leu Ala Val Gln Leu Ser Arg
130 135 140
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Leu Pro Ile Pro Pro Tyr His Val Ala Thr Ser Val Pro Glu Val Glu
20 25 30
Ala Ala Ile Gln Ala Glu Gln Trp Lys Ala Gly Val Val Lys Ala Gln
35 40 45
Val His Ala Gly Gly Arg Gly Lys Asn Gly Gly Val Val Ile Ala His
50 55 60
Ser Pro Glu Asp Leu Leu Ala Ala Ala Asp Lys Leu Leu His Met Gln

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 65                  70                  75                  80
Phe Ser Ser Asn Gln Thr Ala Gly Leu Ser Leu Pro Val Asn Lys Val
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Leu Ile Ser Pro Leu Val Glu Ile Ala Ser Glu Tyr Tyr Leu Ala Ile
            100                 105                 110
Val Ile Asp Arg Lys His Arg Cys Pro Val Ile Met Leu Ser Lys Ala
        115                 120                 125
Gly Gly Val Asp Ile Glu Glu Val Ala Glu Lys Gln Pro Asp Gln Leu
    130                 135                 140
Leu Lys Met Thr Leu Pro Ser Ser Gly Lys Ile Tyr Gly Tyr Gln Leu
145                 150                 155                 160
Arg Arg Ile Ala Lys Phe Met Glu Trp Asp Gln Pro Ile Ala Asp Gln
                165                 170                 175
Gly Asn Arg Ile Ile Arg Gln Leu Leu Gln Cys Phe Tyr Glu Lys Asp
            180                 185                 190
Ala Ser Leu Leu Glu Ile Asn Pro Leu Val Leu Thr Lys Asp Gly Ser
        195                 200                 205
Leu Val Ile Leu Asp Ala Lys Met Thr Ile Asp Asp Asn Ala Leu Tyr
    210                 215                 220
Arg His Pro Glu Leu Ala Asp Cys Tyr Asp Pro Ser Gln Glu Asn Ile
225                 230                 235                 240
Arg Asp Val Leu Ala
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Leu Tyr Glu Gly Asp Phe Gly Pro Lys Leu Thr Glu Ala Phe Cys Glu
        35                  40                  45
Glu Leu Arg Arg Cys Lys Asn Pro Asp Glu Arg Ala Val Lys Glu Leu
    50                  55                  60
Ile Arg Ser Phe Leu Ser Lys Ile Ile Ser Lys Leu Pro Gln Arg Glu
65                  70                  75                  80
Pro Leu Ser Val Arg Pro Phe Ser Thr Leu Val Leu Gly Thr Asn Gly
                85                  90                  95
Ser Gly Lys Thr Thr Thr Val Ala Lys Leu Ala His Tyr Tyr Leu Ser
            100                 105                 110
Gln Asn Gln Lys Val Leu Ile Val Ala Thr Asp Thr Phe Arg Ser Ala
        115                 120                 125
Gly Met Asp Gln Met Arg Cys Trp Ala Glu Thr Leu Asn Cys Gly Phe
    130                 135                 140
Ile Ser Gly Lys Pro Gly Gly Asp Ala Ala Ala Ile Ala Phe Asp Gly
145                 150                 155                 160
Ile Ser Ala Ala Val Ala Arg Asp Tyr Asp His Val Ile Ile Asp Thr
                165                 170                 175
Ser Gly Arg Leu His Thr His Thr Asn Leu Leu Lys Glu Leu Gln Lys
            180                 185                 190
Ile Ala Thr Val Cys Asn Lys Ala Phe Pro Gly Ala Pro His Glu Thr
        195                 200                 205
Leu Met Thr Ile Asp Ala Thr Leu Gly Ser Asn Thr Ile Glu Ser Gly
    210                 215                 220
Cys Asn Tyr Ser Met Lys Pro Tyr Leu Ser Lys Trp Thr Tyr Phe His
225                 230                 235                 240
Lys Ser Gly Arg Phe Cys Gln Arg Arg Leu Ser Leu Pro Tyr Arg Arg
                245                 250                 255
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Leu Pro Gly Thr Phe Ser Ser Arg Val Tyr Gly Trp Met Thr Ala Gly
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Leu Ala Val Thr Ala Leu Thr Ser Leu Gly Leu Tyr Ala Thr Gly Ala
         35                  40                  45
Tyr Arg Ala Leu Phe Pro Met Trp Trp Ile Trp Cys Phe Ala Thr Leu
     50                  55                  60
Gly Val Ser Phe Tyr Ile Gln Ala Gln Ile Gln Lys Leu Ser Val Pro
 65                  70                  75                  80
Ala Val Met Gly Leu Phe Leu Ala Tyr Ser Ile Leu Glu Gly Met Phe
                 85                  90                  95
Phe Gly Thr Leu Val Pro Val Tyr Ala Ala Gln Phe Gly Gly Gly Val
            100                 105                 110
Val Trp Ala Ala Phe Gly Ser Ala Gly Ile Ile Phe Gly Leu Ser Ala
        115                 120                 125
Ala Tyr Gly Ala Phe Thr Lys Asn Asp Leu Thr Gln Ile His Arg Ile
    130                 135                 140
Leu Met Leu Ala Leu Val Gly Leu Val Val Ile Ser Leu Ala Phe Leu
145                 150                 155                 160
Ile Val Ser Leu Phe Thr Pro Met Pro Leu Leu Tyr Leu Leu Ile Cys
                165                 170                 175
Tyr Leu Gly Leu Ile Ile Phe Val Gly Leu Thr Val Val Asp Ala Gln
            180                 185                 190
Ser Ile Arg Arg Val Ala Arg Ser Val Gly Asp His Gly Asp Leu Ser
        195                 200                 205
Tyr Lys Leu Ser Leu Ile Met Ala Leu Gln Met Tyr Cys Asn Val Ile
    210                 215                 220
Met Ile Phe Trp Tyr Leu Leu Gln Ile Phe Ala Ser Ser Asp Lys Arg
225                 230                 235                 240
Arg
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Thr Val Ile Gly Ala Gly Val Leu Ala Val Pro Ile Leu Thr Ala Val
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Glu Gly Phe Phe Pro Ala Val Val Leu Tyr Val Leu Ala Trp Leu Val
         35                  40                  45
Ser Leu Ala Ser Gly Tyr Gly Tyr Leu Glu Val Leu Thr Trp Cys Lys
     50                  55                  60
Gly Asn Arg Gln Ala Asn Leu Cys Ser Met Ala Glu Glu Thr Leu Gly
 65                  70                  75                  80
Arg Val Gly Arg Ile Val Leu Cys Leu Val Tyr Leu Phe Leu Phe Tyr
                 85                  90                  95
Ser Leu Leu Val Ala Tyr Phe Cys Asp Gly Gly Asn Ile Leu Ser Arg
            100                 105                 110
Val Ile Gly Glu Ser Phe Phe Ser Tyr Pro Trp Met Arg His Val Met
        115                 120                 125
Pro Leu Leu Phe Phe Ser Leu Phe Ala Pro Leu Leu Met Ala Asn Thr
    130                 135                 140
Ser Val Ile Asp Tyr Cys Asn Arg Gly Phe Val Phe Gly Leu Ile Phe
145                 150                 155                 160
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Val Phe Gly Leu Phe Cys Val Leu Gly Val Pro Arg Ile Gln Gly Glu
                165                 170                 175
Leu Leu Leu Arg Ala Ser Trp Phe Ser Ser Leu Asn Ser Leu Pro Ile
            180                 185                 190
Phe Phe Leu Ala Phe Gly Phe Gln Asn Val Val Pro Ser Leu Tyr His
        195                 200                 205
Tyr Leu Asp Gly Asn Ile Arg Glu Val Lys Arg Ala Ile Leu Ile Gly
    210                 215                 220
Ser Leu Ile Pro Leu Ile Leu Tyr Ile Ala Trp Glu Ala Leu Val Leu
225                 230                 235                 240
Gly Thr Val Pro Leu Val Asp Leu Leu Lys Ala Lys Asp Leu Gly Trp
                245                 250                 255
Thr Ala Ala Gly Ala Leu Gln Gly Ser Leu Lys Asn Ser Ala Phe Tyr
            260                 265                 270
Ile Ala Gly Glu Leu Phe Gly Phe Phe Ala Leu Val Thr Ser Phe Ile
        275                 280                 285
Gly Thr Ala Leu Ala Leu Lys Asp Phe Tyr Ile Asp Ile Phe Lys Trp
    290                 295                 300
Asp Ala Arg Lys Lys Arg Val Ser Leu Phe Phe Leu Val Gln Val Phe
305                 310                 315                 320
Pro Leu Val Trp Ala Ile Phe Tyr Pro Glu Ile Val Leu Ser Cys Leu
                325                 330                 335
Arg Tyr Ala Gly Gly Ile Gly Gly Ala Cys Ile Val Val Leu Phe Pro
            340                 345                 350
Val Ala Met Leu Trp Asn Gly Arg Tyr Gly Lys Arg Arg Cys Phe Gly
        355                 360                 365
Lys Arg Ile Leu Pro Gly Gly Lys Thr Val Leu Leu Ile Leu Thr Gly
    370                 375                 380
Tyr Thr Val Leu Asn Leu Ala Thr Leu Tyr Tyr Ala Phe
385                 390                 395
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Leu Met Ile Asn Lys Met Leu Gly Gly Ala Leu Leu Val Ala Gly Thr
            20                  25                  30
Thr Ile Gly Ala Gly Val Leu Ala Val Pro Val Ser Thr Ser Glu Gly
        35                  40                  45
Gly Phe Leu Pro Thr Thr Leu Leu Tyr Ile Val Ser Trp Phe Ile Ala
    50                  55                  60
Val Ala Ser Gly Tyr Cys Phe Leu Glu Val Leu Thr Trp Thr His Ser
65                  70                  75                  80
Arg Lys Asn Val Asn Met Val Ser Leu Ala Glu Tyr Thr Leu Gly His
                85                  90                  95
Lys Ser Lys Ile Ile Met Trp Leu Ile Tyr Leu Leu Leu Phe Tyr Ser
            100                 105                 110
Leu Leu Val Ala Tyr Phe Cys Asp Gly Gly Asn Ile Leu Met Arg Val
        115                 120                 125
Met Gly Cys Arg Ser Trp Asp Thr Pro Trp Ile Arg His Ala Met Pro
    130                 135                 140
Val Val Phe Phe Ala Leu Phe Ser Pro Leu Leu Met Ala Lys Thr Ser
145                 150                 155                 160
Ile Ile Asp Gln Cys Asn Arg Val Phe Val Phe Gly Leu Gly Ile Ala
                165                 170                 175
Phe Ala Met Phe Cys Tyr Phe Gly Phe Pro Leu Met Lys Thr Asp Leu
            180                 185                 190
Leu Val Arg Ser Ala Trp Gly Ala Thr Leu Lys Gly Phe Pro Ile Leu
        195                 200                 205
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Phe Leu Ala Phe Gly Phe Gln Asn Val Val Pro Thr Leu Tyr His Tyr
    210                 215                 220
Met Asp Lys Asn Val Lys Asp Val Lys Lys Ala Ile Val Ile Gly Ser
225                 230                 235                 240
Ser Ile Pro Leu Val Leu Tyr Ile Ile Trp Glu Ala Ile Val Leu Gly
                245                 250                 255
Ala Val Pro Ile Ser Phe Leu Glu Gln Ala Lys Val Glu Gly Trp Thr
            260                 265                 270
Ala Ile Gly Ala Leu Gln Thr Ala Leu Lys Cys Ala Ala Phe Tyr Val
        275                 280                 285
Ala Gly Glu Phe Phe Gly Phe Phe Ala Leu Ile Ser Ser Phe Ile Gly
    290                 295                 300
Val Ser Leu Gly Leu Lys Asp Phe Phe Ile Asp Ala Phe Gln Trp Asp
305                 310                 315                 320
Glu Lys Lys Arg Lys Val Glu Ile Phe Phe Leu Val Phe Val Phe Pro
                325                 330                 335
Leu Val Trp Ala Val Phe Tyr Pro Gly Ile Val Leu Lys Cys Leu Glu
            340                 345                 350
Cys Thr Gly Ala Leu Gly Glu Thr Ile Val Leu Gly Val Cys Pro Val
        355                 360                 365
Leu Met Val Trp Lys Gly Arg Tyr Gly Lys Lys Arg Tyr Tyr Gly Lys
    370                 375                 380
Arg Ile Leu Pro Gly Gly Lys Gly Thr Leu Leu Val Met Ser Gly Leu
385                 390                 395                 400
Val Leu Leu Asn Leu Val Leu Ile Ala Gln Lys Phe Leu Gly Tyr
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             20                  25                  30
Ser Glu Leu Glu Tyr Arg Gly Tyr Asp Ser Ala Gly Ile Ala Thr Leu
         35                  40                  45
Ile Glu Gly Arg Leu Phe Val Glu Lys Ala Val Gly Pro Val Ser Gln
     50                  55                  60
Leu Cys Ser Ala Val Ser Ser Asp Ile His Ser Gln Ala Ala Ile Gly
 65                  70                  75                  80
His Thr Arg Trp Ala Thr His Gly Glu Pro Ser Arg Phe Asn Ala His
                85                  90                  95
Pro His Ile Asp Met Asp Ala Ser Cys Ala Leu Val His Asn Gly Ile
            100                 105                 110
Ile Glu Asn Phe Gln Lys Leu Lys Glu Glu Leu Glu Glu Gln Gly Val
        115                 120                 125
Val Phe Ser Ser Asp Thr Asp Thr Glu Val Ile Val Gln Leu Phe Ala
    130                 135                 140
Arg Arg Tyr Lys Glu Thr Arg Asp Leu Ile Gln Ser Phe Ser Trp Thr
145                 150                 155                 160
Leu Lys Arg Leu Gln Gly Ser Phe Ala Cys Ala Leu Met His Gln Asp
                165                 170                 175
His Pro Glu Val Leu Leu Cys Ala Ala His Glu Ser Pro Leu Ile Leu
            180                 185                 190
Gly Leu Gly Glu Asp Glu Val Phe Ile Ser Ser Asp Ile His Ala Phe
        195                 200                 205
Leu Lys Tyr Ser Gly Cys Thr Gln Thr Leu Ala Ser Gly Glu Leu Val
    210                 215                 220
Val Leu Arg Ile Gly Lys Ser Ile Glu Thr Tyr Asn Phe Glu Leu Ala
225                 230                 235                 240
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Arg Ile Gln Lys Glu Val Arg Cys Ile Asp His Thr Glu Asp Ser Leu
                245                 250                 255
Asp Lys Lys Gly Phe Asp Tyr Tyr Met Leu Lys Glu Ile Tyr Glu Gln
            260                 265                 270
Pro Glu Val Phe Glu Arg Ile Leu His Leu Thr Cys Glu Glu Asn Ser
        275                 280                 285
Phe Thr Glu Ser Phe Leu Lys Gly Phe Ser Leu Asp Glu Ile Gln Ser
    290                 295                 300
Leu His Ile Val Ala Cys Gly Ser Ser Tyr His Ala Gly Tyr Leu Ala
305                 310                 315                 320
Lys Tyr Val Ile Glu Ser Ile Ala Ser Ile Pro Val Tyr Val Glu Ile
                325                 330                 335
Ala Ser Glu Phe Arg Tyr Arg Gln Pro Tyr Ile Ala Glu His Ser Leu
            340                 345                 350
Ala Ile Leu Ile Ser Gln Ser Gly Glu Thr Ala Asp Thr Leu Ala Ala
        355                 360                 365
Leu Asn Glu Phe Arg Lys Leu Ser Lys Ala Arg Val Leu Gly Ile Cys
    370                 375                 380
Asn Val Arg Glu Ser Ala Leu Ala Ser Arg Val Asp His Cys Leu Phe
385                 390                 395                 400
Ile Glu Ala Gly Leu Glu Val Gly Val Ala Ser Thr Lys Ala Phe Thr
                405                 410                 415
Ala Gln Leu Leu Leu Leu Ile Leu Leu Gly Leu Arg Leu Ala Asn His
            420                 425                 430
Arg Gln Val Ile Ala Gln Glu Asp Leu Ala Gln Ala Ile Gln Gly Leu
        435                 440                 445
Lys Asp Leu Pro Asn Leu Thr Arg Leu Phe Leu Asp Ser Ser Ile His
    450                 455                 460
Asp Trp Arg Cys Arg Gln Ile Glu Glu Thr Ser Phe Ile Phe Leu Gly
465                 470                 475                 480
Arg Arg Phe Met Tyr Pro Ile Cys Met Glu Ala Ala Leu Lys Leu Lys
                485                 490                 495
Glu Ile Ala Tyr Val Glu Ala Asn Ala Tyr Pro Ala Gly Glu Met Lys
            500                 505                 510
His Gly Pro Ile Ala Leu Ile Arg Glu Gly Thr Pro Val Ile Val Tyr
        515                 520                 525
Cys Gly Asp Arg Ser Val Tyr Thr Lys Thr Ile Gly Ala Ile Met Glu
    530                 535                 540
Val Lys Ala Arg Lys Ala Tyr Val Ile Ala Leu Ala Pro Glu Ser Asn
545                 550                 555                 560
Arg Asp Ile Ala Ala Val Ser Asp Glu Gln Ile Tyr Ile Pro Asp Ser
                565                 570                 575
His Asp Leu Ala Ala Pro Ile Leu Phe Thr Ile Ala Gly Gln Ile Met
            580                 585                 590
Ala Tyr Thr Met Ala Leu Gln Arg Gly Thr Glu Val Asp Arg Pro Arg
        595                 600                 605
Asn Leu Ala Lys Ser Val Thr Val Glu
    610                 615
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            20                  25                  30
Lys Ala Ile Ala Gly Val Leu Leu Glu Lys His Ala Gly Lys His Arg
        35                  40                  45
Val Val Val Gly Lys Asp Thr Arg Leu Ser Gly Tyr Met Phe Glu Asn
    50                  55                  60
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Ala Leu Ile Ala Gly Leu Thr Ser Met Gly Ile Glu Thr Leu Met Leu
 65                  70                  75                  80
Gly Pro Ile Pro Thr Pro Gly Val Ala Phe Ile Thr Arg Ala Tyr Arg
                 85                  90                  95
Ala Asp Ala Gly Ile Met Ile Ser Ala Ser His Asn Pro Tyr Arg Asp
            100                 105                 110
Asn Gly Ile Lys Ile Phe Ser Ser Asp Gly Phe Lys Ile Gly Gln Ala
        115                 120                 125
Val Glu Glu Arg Ile Glu Ala Met Val Ala Ser Lys Asp Phe Gly Lys
    130                 135                 140
Leu Pro Asp Asp His Ala Val Gly Lys Asn Lys Arg Val Lys Asp Ala
145                 150                 155                 160
Thr Gly Arg Tyr Ile Glu Tyr Ala Lys Ala Thr Phe Pro Lys Gly Arg
                165                 170                 175
Thr Leu Lys Gly Leu Arg Ile Val Leu Asp Cys Ala His Gly Ala Thr
            180                 185                 190
Tyr Arg Val Ala Pro Ser Val Phe Glu Glu Leu Asp Ala Glu Val Ile
        195                 200                 205
Cys Tyr Gly Cys Glu Pro Ser Gly Cys Asn Ile Asn Ala Gly Cys Gly
    210                 215                 220
Ala Leu Trp Pro Ser Thr Ile Gln Lys Ala Val Ile Glu His Lys Ala
225                 230                 235                 240
Asp Val Gly Ile Ala Leu Asp Gly Asp Gly Asp Arg Leu Ile Met Val
                245                 250                 255
Asp Glu Lys Gly His Ile Val Asp Gly Asp Met Leu Leu Ser Ile Cys
            260                 265                 270
Ala Ser Asp Leu Lys Arg Arg Gln Ala Leu Pro Asp Asn Arg Val Val
        275                 280                 285
Ala Thr Val Met Thr Asn Phe Gly Val Leu Arg Tyr Leu Glu Ser Leu
    290                 295                 300
Gly Ile Gln Val Thr Ile Ser Pro Val Gly Asp Arg His Val Leu Gln
305                 310                 315                 320
His Met Leu Glu Asn Gln Ala Val Leu Gly Gly Glu Gln Ser Gly His
                325                 330                 335
Met Ile Phe Leu Asp Tyr Asn Thr Thr Gly Asp Gly Ile Val Ser Ala
            340                 345                 350
Leu Gln Val Leu Arg Ile Met Ile Glu Ser Glu Ser Thr Leu Ser Asp
        355                 360                 365
Leu Thr Ala Cys Ile Val Lys Ser Pro Gln Ala Leu Ile Asn Val Pro
    370                 375                 380
Val Thr Lys Lys Val Pro Leu Glu Ser Leu Ala Asn Val Gln Gly Val
385                 390                 395                 400
Leu Lys Glu Val Lys Glu Val Leu Gly Asp Ser Gly Arg Ile Leu Leu
                405                 410                 415
Arg Tyr Ser Gly Thr Glu Asn Ile Cys Arg Val Met Val Glu Gly Thr
            420                 425                 430
Lys Lys His Gln Val Asp Ser Leu Ala Lys Thr Ile Val Asp Val Val
        435                 440                 445
Glu Ala Glu Ile Gly Ala Gly Ile Ser Glu
    450                 455
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Val Ala Cys Cys Ile Leu Leu Ser Leu Gly Met Val Leu Ile Phe Ala
            20                  25                  30
Phe Thr Ile Cys Leu Leu Leu Lys Leu His Lys Ile Met Lys Leu Val
        35                  40                  45
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Ser Arg Ile Ser Ser Leu Phe Asn Phe Glu Ala Arg Trp Leu Ala Pro
50 55 60
Leu Leu Ile Gly Lys Lys Phe Ile Leu Asn Trp Leu Arg Lys Lys Tyr
65 70 75 80
Ala Asp Arg Lys Met Ser Gln Leu Ala Asp Glu Leu Glu Asp Asn Glu
85 90 95
Asp Ser Glu Asn Ser Cys Ser Ser Arg Leu Leu Cys Gly Ala Lys Leu
100 105 110
Ala Ala Ile Ala Leu Cys Ala Trp Leu Leu Ile Arg Lys Lys Asp
115 120 125
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Ser Asn Ser Asn Ser Ile Asn Thr Phe Thr Xaa Asp Ile Glu Met Ala
20 25 30
Lys Gln Ile Gln Gly Ser Arg Lys Asp Pro Leu Ala Lys Thr Ser Trp
35 40 45
Ile Ala Gly Leu Ile Cys Val Val Ala Gly Val Leu Gly Leu Leu Ala
50 55 60
Ile Gly Ile Gly Gly Cys Ser Met Ala Ser Gly Leu Gly Leu Ile Gly
65 70 75 80
Ala Ile Ile Ala Ala Val Val Val Ala Val Gly Leu Cys Cys Leu Val
85 90 95
Ser Ala Leu Cys Leu Xaa Val Glu Lys Ser Gln Trp Trp Gln Lys Glu
100 105 110
Phe Lys Ser Trp Ile Glu Gln Lys Ser Gln Phe Arg Ile Val Met Ala
115 120 125
Asp Met Leu Glu Ala Asn Gln Lys Leu Gln Ser Glu Val Glu Phe Leu
130 135 140
Ser Lys Gly Trp Ser Asp Ala Ala Ala Val His Lys Glu Asp Val Thr
145 150 155 160
Lys Tyr Glu Gln Val Val Glu Lys Tyr Gly Glu Lys Ile Met Lys Leu
165 170 175
Tyr Lys Gln Thr Gly Val Leu Thr Ile Glu Lys Val Asn Leu Gln Lys
180 185 190
Glu Lys Lys Thr Trp Leu Glu Glu Lys Ala Glu Met Glu Gln Lys Leu
195 200 205
Thr Thr Val Thr Asp Leu Glu Ala Ala Lys Gln Gln Leu Glu Glu Lys
210 215 220
Val Thr Asp Leu Glu Ser Glu Lys Gln Glu Leu Arg Glu Glu Leu Asp
225 230 235 240
Lys Ala Thr Glu Asn Leu Asp Glu Met Ala His Glu Ala Met Glu Phe
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20 25 30
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35 40 45
Pro Ala Thr Thr Gln Ile Asn Pro Ala Ile His Glu Val Leu Ala Arg

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     50                  55                  60
Gly Ser Phe Arg Glu Pro Trp Ile Cys Phe Ala Ile Ser Ile Ser Xaa
 65                  70                  75                  80
Val Lys Val Phe Ile Glu Leu Glu Phe Glu Val Gln Val Leu Gly Arg
                 85                  90                  95
Val Val Ile Glu Ser Pro Leu Asn Asp Arg His Ala Asp Gly Pro Lys
            100                 105                 110
Lys Gln Pro Gln Thr Tyr Phe Cys Thr Asn Phe Cys Phe Leu Ala Lys
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Lys Lys Glu Arg Phe Tyr Leu Leu Leu Asn Leu Leu Thr Ser
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<400>571
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Leu Ser Ala Glu Asn Leu Val Ala Ile Asp Gly Tyr Lys Gly Ala Tyr
        35                  40                  45
Gly Gly Ala Ser Ala Gly Val Asp Ile Gln Leu Met Glu Asp Phe Val
    50                  55                  60
Leu Gly Val Ser Gly Ala Ala Phe Leu Gly Lys Met Asp Ser Gln Lys
 65                  70                  75                  80
Phe Asp Ala Glu Val Ser Arg Lys Gly Val Val Gly Ser Val Tyr Thr
                 85                  90                  95
Gly Phe Leu Ala Gly Ser Trp Phe Phe Lys Gly Gln Tyr Ser Leu Gly
            100                 105                 110
Glu Thr Gln Asn Asp Met Lys Thr Arg Tyr Gly Val Leu Gly Glu Ser
        115                 120                 125
Ser Ala Ser Trp Thr Ser Arg Gly Val Leu Ala Asp Ala Leu Val Glu
    130                 135                 140
Tyr Arg Ser Leu Val Gly Pro Val Arg Pro Thr Phe Tyr Ala Leu His
145                 150                 155                 160
Phe Asn Pro Tyr Val Glu Val Ser Tyr Ala Ser Met Lys Phe Pro Gly
                165                 170                 175
Phe Thr Glu Gln Gly Arg Glu Ala Arg Ser Phe Glu Asp Ala Ser Leu
            180                 185                 190
Thr Asn Ile Thr Ile Pro Leu Gly Met Lys Phe Glu Leu Ala Phe Ile
        195                 200                 205
Lys Gly Gln Phe Ser Glu Val Asn Ser Leu Gly Ile Ser Tyr Ala Trp
    210                 215                 220
Glu Ala Tyr Arg Lys Val Glu Gly Gly Ala Val Gln Leu Leu Glu Ala
225                 230                 235                 240
Gly Phe Asp Trp Glu Gly Ala Pro Met Asp Leu Pro Arg Gln Glu Leu
                245                 250                 255
Arg Val Ala Leu Glu Asn Asn Thr Glu Trp Ser Ser Tyr Phe Ser Thr
            260                 265                 270
Val Leu Gly Leu Thr Ala Phe Cys Gly Gly Phe Thr Ser Thr Asp Ser
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Gly Gly Ala Ile Leu Gly Arg Glu Val Ala Ile Leu His Asn Ala Ala
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Val Val Phe Glu Gln Asn Arg Leu Gln Cys Ser Glu Glu Glu Ala Thr
 65                  70                  75                  80
Leu Leu Gly Cys Cys Gly Gly Gly Ala Val His Gly Met Asp Ser Thr
                85                  90                  95
Ser Ile Val Gly Asn Ser Ser Val Arg Phe Gly Asn Asn Tyr Ala Met
            100                 105                 110
Gly Gln Gly Val Ser Gly Gly Ala Leu Leu Ser Lys Thr Val Gln Leu
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Ala Gly Asn Gly Ser Val Asp Phe Ser Arg Asn Ile Ala Ser Leu Gly
    130                 135                 140
Gly Gly Ala Leu Gln Ala Ser Glu Gly Asn Cys Glu Leu Val Asp Asn
145                 150                 155                 160
Gly Tyr Val Leu Phe Arg Asp Asn Arg Gly Arg Val Tyr Gly Gly Ala
                165                 170                 175
Ile Ser Cys Leu Arg Gly Asp Val Val Ile Ser Gly Asn Lys Gly Arg
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Val Glu Phe Lys Asp Asn Ile Ala Thr Arg Leu Tyr Val Glu Glu Thr
        195                 200                 205
Val Glu Lys Val Glu Glu Val Glu Pro Ala Pro Glu Gln Lys Asp Asn
    210                 215                 220
Asn Glu Leu Ser Phe Leu Gly Ser Val Glu Gln Ser Phe Ile Thr Ala
225                 230                 235                 240
Ala Asn Gln Ala Leu Phe Ala Ser Glu Asp Gly Asp Leu Ser Pro Glu
                245                 250                 255
Ser Ser Ile Ser Ser Glu Glu Leu Ala Lys Arg Arg Glu Cys Ala Gly
            260                 265                 270
Gly Ala Ile Phe Ala Lys Arg Val Arg Ile Val Asp Asn Gln Glu Ala
        275                 280                 285
Val Val Phe Ser Asn Asn Phe Ser Asp Ile Tyr Gly Gly Ala Ile Phe
    290                 295                 300
Thr Gly Ser Leu Arg Glu Glu Asp Lys Leu Asp Gly Gln Ile Pro Glu
305                 310                 315                 320
Val Leu Ile Ser Gly Asn Ala Gly Asp Val Val Phe Ser Gly Asn Ser
                325                 330                 335
Ser Lys Arg Asp Glu His Leu Pro His Thr Gly Gly Gly Ala Ile Cys
            340                 345                 350
Thr Gln Asn Leu Thr Ile Ser Gln Asn Thr Gly Asn Val Leu Phe Tyr
        355                 360                 365
Asn Asn Val Ala Cys Ser Gly Gly Ala Val Arg Ile Glu Asp His Gly
    370                 375                 380
Asn Val Leu Leu Glu Ala Phe Gly Gly Asp Ile Val Phe Lys Gly Asn
385                 390                 395                 400
Ser Ser Phe Arg Ala Gln Gly Ser Asp Ala Ile Tyr Phe Ala Gly Lys
                405                 410                 415
Glu Ser His Ile Thr Ala Leu Asn Ala Thr Glu Gly His Ala Ile Val
            420                 425                 430
Phe His Asp Ala Leu Val Phe Glu Asn Leu Lys Glu Arg Lys Ser Ala
        435                 440                 445
Glu Val Leu Leu Ile Asn Ser Arg Glu Asn Pro Gly Tyr Thr Gly Ser
    450                 455                 460
Ile Arg Phe Leu Glu Ala Glu Ser Lys Val Pro Gln Cys Ile His Val
465                 470                 475                 480
Gln Gln Gly Ser Leu Glu Leu Leu Asn Gly Ala Thr Leu Cys Ser Tyr
                485                 490                 495
Gly Phe Lys Gln Asp Ala Gly Ala Lys Leu Val Leu Ala Ala Gly Ser
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Doc No. 5,858,698 - Patent Group 1800

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Lys Leu Lys Ile Leu Asp Ser Gly Thr Pro Val Gln Gly His Ala Ile
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His Ser Leu Trp Ile Ala Lys Asn Ala Gln Thr Thr Val Pro Met Val
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Asp Ile His Thr Ile Ser Val Asp Leu Ala Ser Phe Ser Ser Ser Gln
                565                 570                 575
Gln Glu Gly Thr Val Glu Ala Pro Gln Val Ile Val Pro Gly Gly Ser
            580                 585                 590
Tyr Val Arg Ser Gly Glu Leu Asn Leu Glu Leu Val Asn Thr Thr Gly
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Thr Gly Tyr Glu Asn His Ala Leu Leu Lys Asn Glu Ala Lys Val Pro
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Leu Met Ser Phe Val Ala Ser Ser Asp Glu Ala Ser Ala Glu Ile Ser
625                 630                 635                 640
Asn Leu Ser Val Ser Asp Leu Gln Ile His Val Ala Thr Pro Glu Ile
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Glu Glu Asp Thr Tyr Gly His Met Gly Asp Trp Ser Glu Ala Lys Ile
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Gln Asp Gly Thr Leu Val Ile Asn Trp Asn Pro Thr Gly Tyr Arg Leu
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         35                  40                  45
Gly Gly Gln Ser Val Asn Glu Leu Val Tyr Val Gly Pro Gln Ala Val
     50                  55                  60
Leu Leu Leu Asp Gln Ile Arg Asp Leu Phe Val Gly Ser Lys Asp Ser
 65                  70                  75                  80
Gln Ala Glu Gly Gln Tyr Arg Leu Ile Val Gly Asp Pro Ser Ser Phe
                 85                  90                  95
Gln Glu Lys Asp Ala Asp Thr Leu Pro Gly Lys Val Glu Gln Ser Thr
            100                 105                 110
Leu Phe Ser Val Thr Asn Pro Val Val Phe Gln Gly Val Asp Gln Gln
        115                 120                 125
Asp Gln Val Ser Ser Gln Gly Leu Ile Cys Ser Phe Thr Ser Ser Asn
    130                 135                 140
Leu Asp Ser Pro Arg Asp Gly Glu Ser Phe Leu Gly Ile Ala Phe Val
145                 150                 155                 160
Gly Asp Ser Ser Lys Ala Gly Ile Thr Leu Thr Asp Val Lys Ala Ser
                165                 170                 175
Leu Ser Gly Ala Ala Leu Tyr Ser Thr Glu Asp Leu Ile Phe Glu Lys
            180                 185                 190
Ile Lys Gly Gly Leu Glu Phe Ala Ser Cys Ser Ser Leu Glu Gln Gly
        195                 200                 205
Gly Ala Cys Gly Ala Gln Ser Ile Leu Ile His Asp Cys Gln Gly Leu
    210                 215                 220
Gln Val Lys His Cys Thr Thr Ala Val Asn Ala Glu Gly Ser Ser Ala
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09614010 - 14-10-09

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            260                 265                 270
Ala Asn Cys Asp Gly Ala Ile Ser Phe Glu Gly Asn Ser Ala Asn Phe
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Ala Asn Gly Gly Ala Ile Ala Ala Ser Gly Lys Val Leu Phe Val Ala
    290                 295                 300
Asn Asp Lys Lys Thr Ser Phe Ile Glu Asn Arg Ala Leu Ser Gly Gly
305                 310                 315                 320
Ala Ile Ala Ala Ser Ser Asp Ile Ala Phe Gln Asn Cys Ala Glu Leu
                325                 330                 335
Val Phe Lys Gly Asn Cys Ala Ile Gly Thr Glu Asp Lys Gly Ser Leu
            340                 345                 350
Gly Gly Gly Ala Ile Ser Ser Leu Gly Thr Val Leu Leu Gln Gly Asn
        355                 360                 365
His Gly Ile Thr Cys Asp Lys Asn Glu Ser Ala Ser Gln Gly Gly Ala
    370                 375                 380
Ile Phe Gly Lys Asn Cys Gln Ile Ser Asp Asn Glu Gly Pro Val Val
385                 390                 395                 400
Phe Arg Asp Ser Thr Ala Cys Leu Gly Gly Gly Ala Ile Ala Ala Gln
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Glu Ile Val Ser Ile Gln Asn Asn Gln Ala Gly Ile Ser Phe Glu Gly
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Gly Lys Ala Ser Phe Gly Gly Gly Ile Ala Cys Gly Ser Phe Ser Ser
        435                 440                 445
Ala Gly Gly Ala Ser Val Leu Gly Thr Ile Asp Ile Ser Lys Asn Leu
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Gly Ala Ile Ser Phe Ser Arg Thr Leu Cys Thr Thr Ser Asp Leu Gly
465                 470                 475                 480
Gln Met Glu Tyr Gln Gly Gly Gly Ala Leu Phe Gly Glu Asn Ile Ser
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Thr Phe Ala Ser Asn Gly Lys Ile Leu Gly Gly Gly Ala Ile Leu Ala
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Thr Gly Lys Val Glu Ile Thr Asn Asn Ser Val Glu Phe Leu Leu Gln
    530                 535                 540
Glu Met Arg Xaa Ser Thr Ser Ser Ser Asn Ser Arg Gly Val Ser Phe
545                 550                 555                 560
Ile Gln Gln Lys Arg Arg Ala Thr Thr Leu Phe Arg Ile Phe Trp Gly
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Glu Gln Pro Val Glu Phe Thr Val Phe Ala Thr Ser Asp Val His His
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Gln Leu Met Asn Ser Pro Leu Ser Arg Ser Val Arg Ile Val Thr Ala
    50                  55                  60
Glu Asp Phe Val Ser Met Glu Asp Ser Leu Leu Ala Ala Val Arg Lys
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 65                  70                  75                  80
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                85                  90                  95
Leu Asp Gly Phe Val Ser Ser Gly Asn Thr Ala Ala Leu Val Thr Leu
            100                 105                 110
Ala Arg Ser Lys Ile Pro Met Ile Pro Ala Val Pro Arg Pro Ala Leu
        115                 120                 125
Leu Val Ser Val Pro Thr Leu Ser Gly Phe Ala Val Ile Leu Asp Val
    130                 135                 140
Gly Ala Thr Val Ser Val Asn Pro Asp Glu Met Val Gly Phe Ala Arg
145                 150                 155                 160
Met Gly Leu Ala Tyr Arg Gln Ser Leu Ser Ser Asn Ser Asn Gln Pro
                165                 170                 175
Phe Thr Leu Gly Leu Leu Asn Ile Gly Ser Glu Glu Arg Lys Gly Thr
            180                 185                 190
Asp Ser His Lys Gln Thr Phe Arg Met Leu Arg Asn Ile Phe Gly Ser
        195                 200                 205
Ala Phe Leu Gly Asn Ile Glu Ser Gly Asp Val Phe Ser Gly Lys Val
    210                 215                 220
Asp Ile Val Val Thr Asp Gly Phe Thr Gly Asn Val Phe Leu Lys Thr
225                 230                 235                 240
Ala Glu Gly Leu Phe Asp Phe Leu Arg His Ile Leu Gly Asp Arg Leu
                245                 250                 255
Glu Lys Ser Ile Lys Met Gln Phe Asp Tyr Thr Ile Tyr Pro Gly Ser
            260                 265                 270
Ile Ile Ser Gly Leu Ser Arg Leu Val Ile Lys Cys His Gly Lys Ser
        275                 280                 285
His Gly Thr Ala Leu Phe Gly Gly Ile Ser Gly Ala Ile Asp Leu Ala
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Arg Ala Asn Val Cys Ser Arg Ile Ala Asp Arg Phe Gly Asp Asn Val
305                 310                 315                 320
Val

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             20                  25                  30
Thr Glu Thr Asn Asn Ala Gly Leu Gly Thr Ala Gly Ile Ile Gly Ile
         35                  40                  45
Leu Glu Arg Ala Ser Val Thr Lys Ala Ala Val Phe Pro Glu Glu Thr
     50                  55                  60
Lys Pro Ser Arg Ser Pro Cys Cys Asn Ala Ser Asn Pro Arg Ala Ile
 65                  70                  75                  80
Glu Asp Arg Phe Leu Arg Thr Ala Ala Asn Lys Glu Ser Ser Ile Glu
                85                  90                  95
Thr Lys Ser Ser Ala Val Thr Ile Arg Thr Glu Arg Asp Ser Gly Glu
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Phe Ile Asn Trp Trp
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Lys Asn Gly Gln Leu Phe Asp Leu Ile Ile Glu Arg Lys Lys Ile Arg
        35                  40                  45
Gln Leu Lys Gly Asn Ile Tyr Arg Gly Arg Val Thr Asn Ile Leu Arg
    50                  55                  60
Asn Ile Gln Ser Ala Phe Ile Asn Ile Asp Glu Arg Glu Asn Gly Phe
65                  70                  75                  80
Ile His Ile Ser Asp Val Leu Glu Asn Ser Lys Lys Phe Glu Gln Met
                85                  90                  95
Phe Asp Ile Asp Ser Asp Ala Asp His Ala Glu Pro Arg Pro Glu Glu
            100                 105                 110
Thr Ser Glu Ala Pro Ile Glu Glu Leu Leu Lys Leu Asp Ser Pro Val
        115                 120                 125
Leu Val Gln Val Val Lys Glu Pro Ile Gly Thr Lys Gly Ala Arg Leu
    130                 135                 140
Thr Ser Asn Ile Ser Ile Pro Gly Arg Tyr Leu Val Leu Leu Pro Asn
145                 150                 155                 160
Ser Pro His Arg Gly Val Ser Arg Lys Ile Glu Asp Pro Leu Met Arg
                165                 170                 175
Asp Gln Leu Lys Gln Leu Ile Arg Ser Phe Glu Met Pro Gln Asn Met
            180                 185                 190
Gly Leu Ile Cys Arg Thr Ala Ser Ile Ser Ala Ser Thr Glu Thr Leu
        195                 200                 205
Ile Asn Glu Ala Gln Asp Leu Leu Asn Thr Trp Gln Ser Ile Leu Glu
    210                 215                 220
Lys Phe Tyr Ser Pro Asp His Pro Ser Leu Leu Tyr Glu Glu Thr Asp
225                 230                 235                 240
Ile Leu Lys Lys Ala Val Met Thr Cys Val Asp Lys Ser Tyr Lys Arg
                245                 250                 255
Leu Leu Ile Asp Asp Tyr Ala Thr Tyr Gln Lys Cys Lys Arg Leu Leu
            260                 265                 270
Gly Lys Tyr Ser Pro Asp Thr Thr Val Lys Ile Glu Tyr Tyr Arg Asp
        275                 280                 285
Ser Val Pro Met Phe Glu Arg Phe Asn Ile Glu Lys Glu Ile Asp Arg
    290                 295                 300
Ala Thr Lys Arg Lys Ile Trp Leu Ser Ser Gly Gly Tyr Leu Phe Phe
305                 310                 315                 320
Asp Lys Thr Glu Ala Met His Thr Ile Asp Val Asn Ser Gly Arg Ser
                325                 330                 335
Thr Gln Leu Glu Asn Gly Val Glu Glu Thr Leu Val Gln Ile Asn Leu
            340                 345                 350
Glu Ala Ala Glu Glu Ile Ala Arg Gln Leu Arg Leu Arg Asn Ile Gly
        355                 360                 365
Gly Leu Val Ile Ile Asp Phe Ile Asp Met Lys Ser Arg Lys Asn Gln
    370                 375                 380
Arg Arg Val Leu Glu Arg Leu Lys Glu His Met Lys Tyr Asp Ala Ala
385                 390                 395                 400
Arg Cys Thr Ile Leu Ser Met Ser Glu Phe Gly Leu Val Glu Met Thr
                405                 410                 415
Arg Gln Arg Asn Arg Glu Ser Leu Met Gln Thr Leu Phe Thr Thr Cys
            420                 425                 430
Pro Tyr Cys Asn Gly Asn Ala Ile Ile Lys Thr Ser Glu Ser Ile Leu
        435                 440                 445
Ile Glu Ile Glu Arg Asp Leu Lys Lys Ile Ile Lys His Lys Glu His
    450                 455                 460
Thr Asn Leu Cys Leu Val Val His Pro Glu Ile Ala His Tyr Met Lys
465                 470                 475                 480
Gln Glu Gln Asp Asp Val Glu Leu Ile Arg Leu Ala Lys Gln Leu Lys
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Ala Lys Leu Gln Ile Asn Thr Ser Asp Ser Ile His Leu Asn His Tyr
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Lys Lys Ile Arg Ser Pro Ile Asp Leu Tyr Gln Phe Gly Ile Asp Phe
        35                  40                  45
Phe Ser Ala Leu Ile Asp His Gln Lys Ser Gln Ile Leu His Pro Glu
    50                  55                  60
Arg Leu Asp Gln Ile Gln Glu Tyr Ile Gln Ala Gly His Asn Val Val
65                  70                  75                  80
Leu Leu Ala Asn His Gln Thr Glu Ser Asp Pro Gln Leu Met Tyr Cys
                85                  90                  95
Leu Leu Gly Ala Ser His Pro Gln Leu Met Glu Ser Met Ile Phe Val
            100                 105                 110
Ala Gly Asp Arg Ile Thr Ser Asp Pro Leu Ala Arg Pro Phe Ser Met
        115                 120                 125
Gly Cys Asp Leu Leu Cys Ile Tyr Ser Lys Arg His Ile Asn His Pro
    130                 135                 140
Pro Glu Leu Lys Glu Glu Lys Leu Met His Asn Gln Lys Ser Met Arg
145                 150                 155                 160
Thr Leu Lys Met Leu Leu Ser Glu Gly Gly Lys Phe Phe Tyr Val Ala
                165                 170                 175
Pro Ser Gly Gly Arg Asp Arg Lys Asn Leu Gln Gly Glu Leu Tyr Pro
            180                 185                 190
Ala Glu Phe His Pro Asp Ser Val Glu Met Phe Arg Leu Leu Ala Lys
        195                 200                 205
Ser Ser Gly Lys Thr Thr His Phe Phe Pro Leu Ala Met Lys Thr Tyr
    210                 215                 220
Asp Ile Leu Pro Pro Pro Pro Thr Ile Glu Glu Ala Ile Gly Glu His
225                 230                 235                 240
Arg Val Ile Ser Phe Ala Pro Val Ala Phe Asn Phe Gly Asp Glu Leu
                245                 250                 255
Leu Leu Asp Glu Leu Cys Ser Ser Glu Glu Ala Asp Ile Tyr Asp Lys
            260                 265                 270
His Ala Leu Arg Ala Leu Arg Ala Ser Arg Ala Phe Ser Ile Val Thr
        275                 280                 285
Asp Leu Tyr Lys Glu Ile Leu Thr
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Leu Thr Ala Cys Ser Lys Ser Phe Gln Thr Ile Arg Asp Glu Asn Pro
        35                  40                  45
Leu Thr Ile Leu Thr Pro Ala Leu Ala Asp Gln Lys Ile Ala Lys Ile
    50                  55                  60
Leu Cys Pro Asn Gly Leu Ser Leu Met Ile Val Ser Ser Pro His Ala
65                  70                  75                  80
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Ala Glu Ser Gly Ala Ala Leu Val Val Lys Thr Gly Asn Asn Ala Asp
                85                  90                  95
Pro Val Glu Phe Pro Gly Leu Ala His Phe Thr Glu His Cys Val Phe
            100                 105                 110
Leu Gly Asn Glu Lys Tyr Pro Glu Pro Ser Gly Phe Pro Ala Phe Leu
        115                 120                 125
Ser Thr His Gly Gly Ile Tyr Asn Ala Phe Thr Tyr Pro Asp Lys Thr
    130                 135                 140
Cys Phe Leu Phe Ser Val Asn Asn Ala Asp Leu Asp Asn Ala Leu Asp
145                 150                 155                 160
Gln Phe Val His Leu Phe Ile Gln Pro Leu Phe Arg Gln Glu Asp Leu
                165                 170                 175
Asn Lys Glu Val His Ala Val Glu Gln Glu Phe Ala Met His Pro Thr
            180                 185                 190
Lys Asp Ser Arg Arg Met His Arg Ile Gln Gln Leu Ile Ala Pro Lys
        195                 200                 205
Asn His Pro Leu Lys Arg Phe Gly Cys Gly Asn Leu Ser Thr Leu Asn
    210                 215                 220
Ser Val Thr Thr Gln Asp Met Gln Thr Trp Phe Ala Thr His Tyr Ser
225                 230                 235                 240
Pro Glu Asn Met Ala Ala Ile Val Tyr Thr Thr Ala Pro Leu Asp Thr
                245                 250                 255
Ala Val Pro Tyr Ile Ala Ser Leu Phe Ser Glu Ile Pro Ile Ser Ala
            260                 265                 270
Gln Tyr Thr Pro Gln Lys Pro Phe Pro Lys Thr Gln Asp Thr Thr Ala
        275                 280                 285
Leu Asn Lys Leu Phe Ile Asn Lys Ala Val Glu Pro Ser Pro Gln Leu
    290                 295                 300
Ala Ile Tyr Trp His Phe Tyr Asp Ala Pro Gln Ser Leu Gln Gly Trp
305                 310                 315                 320
Ala Gln Ser Leu Ile Ser Ile Leu Ser Ser Glu Lys Glu Asn Ser Leu
                325                 330                 335
Val Ala Leu Leu Lys Lys Glu Gln Leu Ile Thr Glu Met Glu Ala Glu
            340                 345                 350
Leu Tyr Ser Thr Ser His Asn Thr Gln Asp Phe Glu Ile Leu Tyr Lys
        355                 360                 365
Leu Thr Asn Lys Gly Glu Arg Glu Tyr Gln Arg Val Leu Gln Leu Thr
    370                 375                 380
Phe Ala Phe Leu Asp Tyr Val Arg His Glu Arg Leu Pro Ala Tyr Ser
385                 390                 395                 400
Leu Pro Glu Ile Gln Lys Ile Asn Ser Leu Glu Tyr Thr Tyr Ser Thr
                405                 410                 415
Gln Thr Glu Leu Phe Ser Thr Leu Ser Arg Met Val Pro Asn Phe Thr
            420                 425                 430
Ser Glu Pro Leu Ala Thr Tyr Pro Tyr Arg Ser Leu Val Tyr Pro Glu
        435                 440                 445
Tyr Ser Gln Glu Asp Glu Gln Thr Phe Ala Thr Phe Leu Ala Asp Pro
    450                 455                 460
Gln Gln Ala Arg Tyr Ile Leu Ser Ala Thr Leu Pro Ser Ser Trp Glu
465                 470                 475                 480
Asn Ala Asp Glu Phe Tyr Asp Pro Ile Phe Asp Asp Thr Phe Tyr Glu
                485                 490                 495
Lys Pro Leu Asp Phe Thr Pro Ile Gln Asp Ser Ser Ser Leu Gly Phe
            500                 505                 510
Ala Phe Pro Asn Pro Asn Lys Phe Ile Pro Gln Thr Val Gln Leu Leu
        515                 520                 525
Ser Gln Lys Lys Gln His Glu Gly Phe Ala Phe Ser Pro Gln Leu Thr
    530                 535                 540
Tyr Asp Gln Asn Ala Ile Thr Leu Tyr Thr Cys Glu Asp Ser Phe Tyr
545                 550                 555                 560
Thr Ile Pro Lys Ile Ala Met Glu Leu Arg Ile Arg Ser Pro Gln Ile
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565 570 575
Gln Arg Thr Asp Val Arg Ser Leu Val Leu Arg Asp Leu Tyr Ser Leu
580 585 590
Leu Ala Asn Glu Thr Leu Ile Lys Arg Tyr Asp Asp Ala Leu Lys Ala
595 600 605
Gly Met Thr Phe Ala Val Ser Pro Gly Ala Thr Gly Val Asp Leu Ser
610 615 620
Leu Leu Gly Tyr Thr Glu Thr Ser Pro Val Leu Ile Asn Ala Leu Leu
625 630 635 640
Ser Ser Leu Arg Asp Leu Pro Val Glu Glu Ser Leu Phe Leu Tyr Tyr
645 650 655
Lys Asp Gln Leu Ser Glu Gln Tyr Gln Lys Asn Leu Ile Ala Cys Pro
660 665 670
Ile Arg Ala Gly Leu Asn Lys Leu Tyr Ser Gln Ile Leu Val Asp Thr
675 680 685
Val Ser Leu Glu Xaa Lys Leu Asn Thr Leu Asn Thr Leu Ser Tyr Glu
690 695 700
Glu Phe Ala Asn Phe Thr Asn Lys Leu Leu Gln Glu Leu Ala Val Glu
705 710 715 720
Ser Leu Ala Leu Gly Thr Leu Ser Ala Gln Asp Leu Ser Asn Leu Leu
725 730 735
Ser Thr Leu Ser Asn Phe Ala Glu Ala Ser Ser Pro Tyr Ala Ala Pro
740 745 750
Ser Tyr Leu Ser Ser Lys Lys Thr Ser Leu Phe Tyr Lys Ala Phe Val
755 760 765
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770 775 780
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785 790

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Val Phe Ser Leu Phe Ile Ile Ala Met Leu Ile Leu Leu Glu Ser Arg
35 40 45
Pro Ile Glu Tyr Phe Ser Gln Arg Val Phe Ala Thr Ile Ala Lys Ile
50 55 60
Gly Lys Gln Ser Pro Ile Cys Trp Trp Trp Thr Ile Met Ile Ala Ala
65 70 75 80
Pro Leu Ser Ala Phe Phe Leu Lys Glu Ser Gly Ala Met Ile Ile Ala
85 90 95
Ala Thr Leu Leu Ser Lys Gln Phe Tyr Lys Phe Ser Pro Ser Pro Lys
100 105 110
Phe Cys Tyr Ala Thr Met Gly Leu Leu Phe Ser Asn Ile Ser Ile Ser
115 120 125
Gly Leu Thr Ser Ser Phe Ser Ser Arg Ala Leu Leu Thr Ile Leu Pro
130 135 140
Glu Ile Lys Trp Thr Asn Ser Phe Ile Ile Ser His Phe Cys Trp Lys
145 150 155 160
Val Ile Leu Ala Ile Leu Val Ser Thr Thr Ile Leu Phe Cys Leu Phe
165 170 175
Arg Lys Glu Phe Lys Lys Phe Pro Lys Thr Ile Pro Ser Thr Thr Met
180 185 190
Met Asn Asp Arg Leu Pro Ser Trp Ile Ile Phe Ile His Val Val Leu
195 200 205
Val Gly Cys Val Ile Leu Ser Arg Ala Ile Pro Leu Phe Leu Gly Phe

09/504,200 - 1/30/00

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    210                 215                 220
Leu Phe Ile Phe Tyr Leu Gly Phe Gln Arg Phe Thr Ile Phe Tyr Gln
225                 230                 235                 240
His Pro Ile Gln Asn Ser Lys Ser Ser Val Ser
                245                 250
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<213>Chlamydia trachomatis
<400>580
Gly Tyr Asn Ser Ala Gly Phe Ile Arg Ser Trp Asn Met Gln His Thr
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Ile Met Leu Ser Leu Glu Asn Asp Asn Asp Lys Leu Ala Ser Met Met
            20                  25                  30
Asp Arg Val Val Ala Ala Ser Ser Ser Ile Leu Ser Ala Ser Lys Asp
        35                  40                  45
Ser Glu Ser Asn Arg Gln Phe Thr Ile Ser Lys Ala Pro Asp Lys Glu
    50                  55                  60
Ala Pro Cys Arg Val Ser Tyr Val Ala Ala Ser Ala Leu Ser Glu
65                  70                  75
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<212>PRT
<213>Chlamydia trachomatis
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Asn Ser His Thr Leu Ser Ser Asp Thr Phe Gly Asp Gln Leu Ser Leu
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Ser Ile Ser Ser Arg Asp Ser Leu Gln Val Ile Asn Ala Cys His Leu
            20                  25                  30
Glu Thr Pro Ser Asn Ser Ile Trp Lys Ser Val Ala Leu Phe Arg Arg
        35                  40                  45
Tyr Thr Gly Ile Thr Thr Pro Val Ser Trp Arg Val Val Lys Gln Ile
    50                  55                  60
Pro Val Gly Ala Gly Leu Ala Gly Gly Ser Ser Asn Ala Ala Thr Ala
65                  70                  75                  80
Leu Phe Ala Leu Asn Gln Ile Phe Lys Thr Gly Leu Ser Asp Glu Glu
                85                  90                  95
Met Arg Ser Leu Ala Glu Gln Ile Gly Met Asp Thr Pro Phe Phe Phe
            100                 105                 110
Ser Thr Gly Ala Ala Leu Gly Val Ala Arg Gly Glu Lys Ile Ile Ala
        115                 120                 125
Leu Glu Glu Ser Val Ser Asp Arg Tyr Val Leu Tyr Phe Ser Ser Glu
    130                 135                 140
Gly Val Leu Thr Ser Arg Ala Phe Ala Val Val Gln Pro Ser Asp Cys
145                 150                 155                 160
Ser Ser Arg Lys Asn Leu Glu Tyr Thr Gln Asn Asp Leu Glu Lys Pro
                165                 170                 175
Val Phe Arg Leu Arg Leu Asp Leu Lys Glu Lys Lys His Trp Leu Glu
            180                 185                 190
Ser Leu Trp Ala Glu Leu Pro Val His Ile Gly Leu Thr Gly Ser Gly
        195                 200                 205
Ala Thr Leu Phe Val Arg Tyr Pro Glu Ile Leu Glu Glu Asp Pro Ser
    210                 215                 220
Tyr Ala Ala Gln Ile Gln Arg Ala Val Thr Leu Ser Gly Gly Leu Leu
225                 230                 235                 240
Thr Ser Pro Ile Arg Arg Asp Pro Thr Ala Trp Tyr Ser Ile Tyr Ser
                245                 250                 255
Glu Ser Ala Leu Ala Ala Thr
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<210>582
<211>183
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<212>PRT
<213>Chlamydia trachomatis
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Arg Thr Asn Lys Val Ala Pro Asp Pro Val Ser Pro Ile Cys Thr Gly
1 5 10 15
Ser Ser Ala His Arg Leu Ser Ser Gln Cys Phe Phe Ser Phe Lys Ser
20 25 30
Lys Arg Asn Arg Lys Thr Gly Phe Ser Lys Ser Phe Cys Val Tyr Ser
35 40 45
Lys Phe Phe Leu Glu Glu Gln Ser Glu Gly Cys Thr Thr Ala Lys Ala
50 55 60
Arg Leu Val Arg Thr Pro Ser Leu Glu Lys Tyr Lys Thr Tyr Leu Ser
65 70 75 80
Glu Thr Leu Ser Ser Arg Ala Ile Ile Phe Ser Pro Arg Ala Thr Pro
85 90 95
Lys Ala Ala Pro Val Glu Lys Lys Lys Gly Val Ser Met Pro Ile Cys
100 105 110
Ser Ala Lys Glu Arg Ile Ser Ser Ser Asp Ser Pro Val Leu Lys Ile
115 120 125
Trp Phe Lys Ala Asn Asn Ala Val Ala Ala Leu Leu Leu Pro Pro Ala
130 135 140
Arg Pro Ala Pro Thr Gly Ile Cys Leu Thr Thr Arg Gln Leu Thr Gly
145 150 155 160
Val Val Met Pro Val Tyr Arg Arg Lys Ser Ala Thr Leu Phe His Ile
165 170 175
Glu Leu Leu Gly Val Ser Arg
180
<210>583
<211>167
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<213>Chlamydia trachomatis
<400>583
Met Lys Pro Gln Leu Leu Leu Leu Glu Asp Val Asp Gly Leu Gly Arg
1 5 10 15
Ser Gly Asp Leu Val Val Ala Lys Pro Gly Tyr Val Arg Asn Tyr Leu
20 25 30
Leu Pro Lys Gly Lys Ala Val Val Ser Ser Ala Gly Thr Leu Arg Leu
35 40 45
Gln Ala Lys Leu Gln Glu Gln Arg Leu Leu Gln Ala Ala Ala Asp Lys
50 55 60
Glu Glu Ser Leu Arg Leu Ala Glu Met Leu Arg Ser Ile Val Leu Asp
65 70 75 80
Phe Gln Val Arg Val Asp Ser Glu Asn Asn Met Tyr Gly Ser Val Thr
85 90 95
Val Asn Asp Met Ile Ser Ala Ala Glu Gln Gln Gly Val Val Leu Thr
100 105 110
Arg Lys Asn Phe Pro Arg Ser His Ser Gly Ile Lys Asn Leu Gly Arg
115 120 125
His Val Val Gly Leu Lys Leu Lys Glu Gly Val Thr Ala Asp Leu His
130 135 140
Leu Glu Val Arg Ala Asp His Glu Ile Ile Glu Gln Lys Glu Leu Gln
145 150 155 160
Ser Ala Glu Glu Gln Glu Gly
165
<210>584
<211>81
<212>PRT
<213>Chlamydia trachomatis
<400>584
Met Asn Arg Pro Val His Asn Glu His Arg Arg Lys Arg Phe Ala Lys
1 5 10 15

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Lys Cys Pro Phe Val Ser Ala Gly Trp Lys Thr Ile Asp Tyr Lys Asp
            20                  25                  30
Val Thr Thr Leu Lys Arg Phe Ile Thr Glu Arg Gly Lys Ile Leu Pro
        35                  40                  45
Arg Arg Ile Thr Gly Val Ser Ser Arg Phe Gln Ala Leu Leu Ala Gln
    50                  55                  60
Ala Val Lys Arg Ala Arg His Val Gly Leu Leu Pro Phe Val Gly Glu
65                  70                  75                  80
Asp
```

<210>585
<211>112
<212>PRT
<213>Chlamydia trachomatis
<400>585

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Met Gln Lys Lys Thr Gly Gln Leu Tyr Glu Gly Ala Tyr Val Phe Ser
 1               5                  10                  15
Val Thr Leu Ser Glu Asp Ala Arg Arg Lys Ala Leu Glu Lys Val Thr
            20                  25                  30
Ser Gly Ile Thr Asn Tyr Gly Gly Glu Val Leu Lys Ile His Asp Gln
        35                  40                  45
Gly Arg Lys Lys Leu Ala Tyr Thr Ile Arg Gly Ala Arg Glu Gly Tyr
    50                  55                  60
Tyr Tyr Phe Ile Tyr Phe Thr Val Ala Pro Glu Ala Ile Ala Glu Leu
65                  70                  75                  80
Trp Arg Glu Tyr His Leu Asn Glu Asp Leu Leu Arg Phe Met Thr Leu
                85                  90                  95
Lys Ala Ser Ala Val Lys Glu Val Leu Glu Phe Ala Thr Leu Pro Glu
            100                 105                 110
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<213>Chlamydia trachomatis
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 1               5                  10                  15
Ser Cys Cys Ser Arg Arg His His Arg Glu Phe Gly Phe Val Arg Phe
            20                  25                  30
Arg Gln Asp Cys Gly Ser Gly Gly His Asn Gly Ile Lys Asn Thr Thr
        35                  40                  45
Gln Ile Leu Gln Ser Asn His Tyr Trp Gln Leu Arg Leu Gly Val Gly
    50                  55                  60
Arg Pro Ser Tyr Pro Gly Ala Glu Gly Val Ala Asp Tyr Val Leu Ser
65                  70                  75                  80
Ser Phe Ser Leu Asn Glu Lys Glu Lys Leu Asn Asp Phe Leu Glu Lys
                85                  90                  95
Gly Ile Glu Glu Ile Leu Pro Trp Leu Gly Cys
            100                 105
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<210>587
<211>134
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<213>Chlamydia trachomatis
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Met Val Lys Leu Val Val Gly Ile Gly Asn Pro Gly Arg Gln Tyr Val
 1               5                  10                  15
Trp Thr Arg His Asn Ile Gly Phe Leu Leu Leu Asp Ser Leu Ala Ser
            20                  25                  30
Arg Phe Leu Gly Ala Phe Arg Glu Ala Pro Arg Leu Tyr Ala Ser Phe
        35                  40                  45
Ala Lys Val Glu Ile Ser Ser Glu Ala Val Val Leu Met Lys Pro Thr
    50                  55                  60
```

```
Thr Tyr Val Asn Leu Thr Gly Lys Ala Val Leu Ala Ala Lys Lys Phe
 65                  70                  75                  80
Phe Asp Val Ser Met Glu Asp Ile Leu Val Val Ala Asp Asp Ile Ile
                85                  90                  95
Gly Asn Ser Val Leu Cys Val Phe Gly Lys Ile Val Ala Leu Val Gly
            100                 105                 110
Thr Met Glu Leu Arg Ile Pro Arg Arg Phe Cys Asn Pro Ile Ile Ile
        115                 120                 125
Gly Asn Tyr Val Leu Gly
    130
<210>588
<211>127
<212>PRT
<213>Chlamydia trachomatis
<400>588
Leu Leu Leu Cys Ser Arg Phe Leu Asn Glu Gly Arg Glu Ile Lys Ala
  1               5                  10                  15
Leu Val Lys Asp Ile Gln Tyr His Val Thr Thr Tyr Asp Val Ile His
            20                  25                  30
Leu Asp Phe Glu Glu Leu Val Asp Gly Arg Asp Val Arg Leu Asn Val
        35                  40                  45
Pro Ile Arg Cys Ile Asn Thr Val Asp Cys Val Gly Val Lys Leu Gly
    50                  55                  60
Gly Ser Leu Arg Gln Val Ile Arg Cys Ile Arg Val Val Cys Lys Pro
 65                  70                  75                  80
Lys Asp Ile Val Pro Phe Leu Glu Leu Asp Val Gln Ser Leu Gly Leu
                85                  90                  95
Ser Gln Thr Leu Lys Leu Ser Asp Ile Cys Ile Pro Glu Gly Ile Arg
            100                 105                 110
Pro Val Thr Ser Leu Lys Glu Val Ala Val Thr Val Ala Arg Arg
        115                 120                 125
<210>589
<211>493
<212>PRT
<213>Chlamydia trachomatis
<400>589
Leu Leu Lys Glu Ile Ile Asn Glu Phe Tyr Leu Ile Asn Glu Thr Lys
  1               5                  10                  15
Ser Leu Leu Met Lys Ile Ile His Thr Ala Ile Glu Phe Ala Pro Val
            20                  25                  30
Ile Lys Ala Gly Gly Leu Gly Asp Ala Leu Tyr Gly Leu Ala Lys Ala
        35                  40                  45
Leu Ala Ala Asn His Thr Thr Glu Val Val Ile Pro Leu Tyr Pro Lys
    50                  55                  60
Leu Phe Thr Leu Pro Lys Glu Gln Asp Leu Cys Ser Ile Gln Lys Leu
 65                  70                  75                  80
Ser Tyr Phe Phe Ala Gly Glu Gln Glu Ala Thr Ala Phe Ser Tyr Phe
                85                  90                  95
Tyr Glu Gly Ile Lys Val Thr Leu Phe Lys Leu Asp Thr Gln Pro Glu
            100                 105                 110
Leu Phe Glu Asn Ala Glu Thr Ile Tyr Thr Ser Asp Asp Ala Phe Arg
        115                 120                 125
Phe Cys Ala Phe Ser Ala Ala Ala Ala Ser Tyr Ile Gln Lys Glu Gly
    130                 135                 140
Ala Asn Ile Val His Leu His Asp Trp His Thr Gly Leu Val Ala Gly
145                 150                 155                 160
Leu Leu Lys Gln Gln Pro Cys Ser Gln Leu Gln Lys Ile Val Leu Thr
                165                 170                 175
Leu His Asn Phe Gly Tyr Arg Gly Tyr Thr Thr Arg Glu Ile Leu Glu
            180                 185                 190
Ala Ser Ser Leu Asn Glu Phe Tyr Ile Ser Gln Tyr Gln Leu Phe Arg
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         195                 200                 205
Asp Pro Gln Thr Cys Val Leu Leu Lys Gly Ala Leu Tyr Cys Ser Asp
     210                 215                 220
Phe Val Thr Thr Val Ser Pro Thr Tyr Ala Lys Glu Ile Leu Glu Asp
225                 230                 235                 240
Tyr Ser Asp Tyr Glu Ile His Asp Ala Ile Thr Ala Arg Gln His His
                245                 250                 255
Leu Arg Gly Ile Leu Asn Gly Ile Asp Thr Thr Ile Trp Gly Pro Glu
            260                 265                 270
Thr Asp Pro Asn Leu Ala Lys Asn Tyr Thr Lys Glu Leu Phe Glu Thr
        275                 280                 285
Pro Ser Ile Phe Phe Glu Ala Lys Ala Glu Asn Lys Lys Ala Leu Tyr
    290                 295                 300
Glu Arg Leu Gly Leu Ser Leu Glu His Ser Pro Cys Val Cys Ile Ile
305                 310                 315                 320
Ser Arg Ile Ala Glu Gln Lys Gly Pro His Phe Met Lys Gln Ala Ile
                325                 330                 335
Leu His Ala Leu Glu Asn Ala Tyr Thr Leu Ile Ile Ile Gly Thr Cys
            340                 345                 350
Tyr Gly Asn Gln Leu His Glu Glu Phe Ala Asn Leu Gln Glu Ser Leu
        355                 360                 365
Ala Asn Ser Pro Asn Val Arg Ile Leu Leu Thr Tyr Ser Asp Val Leu
    370                 375                 380
Ala Arg Gln Ile Phe Ala Ala Ala Asp Met Ile Cys Ile Pro Ser Met
385                 390                 395                 400
Phe Glu Pro Cys Gly Leu Thr Gln Met Ile Gly Met Arg Tyr Gly Thr
                405                 410                 415
Val Pro Leu Val Arg Ala Thr Gly Gly Leu Ala Asp Thr Val Ala Asn
            420                 425                 430
Gly Ile Asn Gly Phe Ser Phe Phe Asn Pro His Asp Phe Tyr Glu Phe
        435                 440                 445
Arg Asn Met Leu Leu Glu Ala Val Thr Thr Tyr Arg Thr Asn His Asp
    450                 455                 460
Lys Trp Gln His Ile Val Arg Ala Cys Leu Asn Phe Ser Ser Asp Leu
465                 470                 475                 480
Glu Thr Ala Ala Asn Lys Tyr Leu Glu Ile Tyr Lys Gln
                485                 490
<210>590
<211>219
<212>PRT
<213>Chlamydia trachomatis
<400>590
Leu Gly Ile Gln Lys Arg Phe Leu Gly Glu Gln Met Arg Val Ser Leu
  1                 5                  10                  15
Pro Asn Phe Leu Thr Val Phe Arg Leu Phe Ile Thr Pro Ile Phe Met
             20                  25                  30
Ile Leu Tyr Leu Lys Gly Arg Trp Phe Gly Leu Ser Ala Ala Phe Leu
         35                  40                  45
Pro Tyr Val Leu Leu Phe Leu Leu Ile Ile Thr Glu Ile Thr Asp Ala
     50                  55                  60
Val Asp Gly Tyr Ile Ala Arg Lys Phe Ser Gln Val Thr Asp Leu Gly
 65                  70                  75                  80
Lys Leu Leu Asp Pro Met Ala Asp Ser Val Tyr Arg Ile Ser Leu Tyr
                 85                  90                  95
Leu Thr Phe Thr Gln Pro Pro Val Asn Leu Pro Leu Ile Leu Val Phe
            100                 105                 110
Ile Phe Leu Ala Arg Asp Ser Val Ile Ser Thr Leu Arg Thr Leu Cys
        115                 120                 125
Ala Ser Arg Gly Gln Val Leu Ala Ala Arg Met Ser Gly Lys Leu Lys
    130                 135                 140
Ala Ile Leu Gln Ala Ile Ser Phe Phe Phe Ile Ile Phe Ser Met Phe
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145 150 155 160
Leu Cys Ala Lys Gly Ile Ile Ser Thr Asp Asp Leu Glu Phe Phe Ser
165 170 175
Thr Val Ile Val Ser Leu Val Ala Phe Tyr Ser Ile Cys Ser Gly Val
180 185 190
Glu Tyr Ile Trp Val Asn Lys Ser His Leu Leu Gln Lys Asn Asp Ser
195 200 205
Arg Met Ala Ser His Arg Glu Val Tyr Cys Leu
210 215
<210>591
<211>1031
<212>PRT
<213>Chlamydia trachomatis
<400>591
Leu Phe Cys Arg Ala Arg Leu Leu Phe Gln Ala Val Phe Arg Val Arg
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Lys Ala Leu Leu Phe Leu Arg Tyr Leu Gly Val Phe Met Ser Ser Gln
20 25 30
Pro Leu Thr Leu Gln Ala Met Met Ala Ala Ile Leu Asn Phe Trp Ser
35 40 45
Glu Gln Gly Cys Ile Ile His Gln Gly Tyr Asp Leu Glu Val Gly Ala
50 55 60
Gly Thr Phe Asn Pro Ala Thr Phe Leu Gln Ser Leu Gly Pro Glu Pro
65 70 75 80
Phe Arg Thr Ala Tyr Ile Glu Pro Ser Arg Arg Pro Gln Asp Gly Arg
85 90 95
Tyr Gly Gln His Pro Asn Arg Leu Gln Lys Tyr His Gln Leu Gln Val
100 105 110
Ile Leu Lys Pro Val Pro Glu Asn Phe Leu Ser Leu Tyr Leu Glu Ser
115 120 125
Leu Lys Val Ile Gly Leu Asn Leu Val Asp His Asp Ile Arg Phe Val
130 135 140
His Asp Asp Trp Glu Asn Pro Thr Ile Gly Ala Trp Gly Leu Gly Trp
145 150 155 160
Glu Val Trp Leu Asn Gly Met Glu Ile Thr Gln Leu Thr Tyr Phe Gln
165 170 175
Ala Val Gly Ser Lys Pro Leu Asp Ala Ile Ser Gly Glu Ile Thr Tyr
180 185 190
Gly Val Glu Arg Ile Ala Met Tyr Leu Gln Lys Lys Asn Ser Val Tyr
195 200 205
Asp Val Met Trp Asn Gly Ser Leu Thr Tyr Gly Asp Ile Thr Gln Tyr
210 215 220
Ala Glu Gln Ala Trp Ser Gln Tyr Asn Phe Glu Thr Ala Asn Thr Thr
225 230 235 240
Met Trp Leu Lys His Phe Asp Asp Phe Ser Ala Glu Ala Leu Ala Thr
245 250 255
Leu Asp Gln Gly Leu Pro Leu Pro Ala Tyr Asp Phe Val Ile Lys Ala
260 265 270
Ser His Ala Phe Asn Met Leu Asp Ser Arg Gly Val Ile Ser Val Thr
275 280 285
Glu Arg Thr Arg Tyr Ile Ala Lys Ile Arg Gln Leu Ala Arg Ala Ala
290 295 300
Ala Asp Lys Tyr Val Ala Trp Arg Glu Ser Leu Gly Phe Pro Leu Leu
305 310 315 320
Lys Thr Pro Pro Ser Thr Pro Thr Val Thr Pro Lys Lys Ile Pro Thr
325 330 335
Ile Cys Gln Pro Glu Asp Phe Leu Leu Glu Ile Gly Ser Glu Glu Leu
340 345 350
Pro Ala Thr Phe Val Pro Thr Gly Ile Gln Gln Leu Glu Ser Leu Ala
355 360 365
Lys Lys Leu Leu Ala Asp His Gly Ile Ala Tyr Lys His Leu Glu Val

370 375 380
Leu Gly Thr Pro Arg Arg Leu Ala Leu Cys Ile Glu Gly Leu Ser His
385 390 395 400
Val Thr Ile Arg Pro Glu Ser Glu Lys Lys Gly Pro Pro Leu Ser Leu
405 410 415
Leu Phe Met Thr Asp Gly Ser Val Ser Pro Gln Gly Glu Gln Phe Phe
420 425 430
Pro Ser His Gly Leu Ser Ile Ser His Arg Ser Ala Leu Asp Gln Pro
435 440 445
Ser Ala Ile Cys Arg Val Arg Ser Ile Asn Gly Thr Asp Tyr Leu Phe
450 455 460
Leu Val Ile Pro Glu Glu Arg Lys Glu Thr Ala Ala Ile Leu Val Asn
465 470 475 480
Glu Leu Pro Gln Leu Ile Arg Ser Ile Arg Phe Pro Gln Lys Met Thr
485 490 495
Trp Asp Asn Gly Gly Val Glu Tyr Ala Arg Pro Ile Arg Trp Leu Val
500 505 510
Ala Leu Tyr Gly Asp Gln Ile Leu Pro Ile Ser Leu Gly Phe Val Ser
515 520 525
Ser Gly Asn Thr Ser Trp Gly His Arg Gln Leu Asp Asn Arg Gln Leu
530 535 540
Thr Ile Pro Ser Ser Asn Met Tyr Val Asp Thr Leu Arg Ser Ala Cys
545 550 555 560
Val Ile Val Ser Gln Lys Glu Arg Arg Ala Ile Ile Lys Gln Gly Leu
565 570 575
Gln Asn Leu Thr Gly Asp Gln Ile Val Ala Ile Ala Pro Glu His Leu
580 585 590
Val Asp Glu Thr Val Phe Leu Thr Glu His Pro Phe Val Ile Ser Ala
595 600 605
Gln Phe Asp Pro Ala Phe Cys Ser Leu Pro Lys Glu Leu Leu Ile Ala
610 615 620
Glu Met Ile Gln His Gln Arg Tyr Phe Pro Thr Gln Asn Met Gln Gly
625 630 635 640
Glu Ile Thr Asn Arg Phe Leu Ile Val Cys Asp Asn Ser Pro Thr Asp
645 650 655
Ser Ile Val Glu Gly Asn Glu Lys Ala Leu Ala Pro Arg Leu Thr Asp
660 665 670
Gly Asn Phe Leu Phe Lys Gln Asp Leu Leu Thr Pro Leu Ser Ser Phe
675 680 685
Val Glu Lys Leu Lys Ser Val Thr Tyr Phe Glu Ser Leu Gly Ser Leu
690 695 700
Ala Asp Lys Thr Ser Arg Leu Lys Leu His Leu Glu Glu Ala Tyr Ala
705 710 715 720
Leu Leu Pro Leu Cys Ala Lys Glu Asp Ile Asp Thr Ala Ile His Tyr
725 730 735
Cys Lys Ala Asp Leu Val Ser Ser Val Val Asn Glu Phe Pro Glu Leu
740 745 750
Gln Gly Ile Met Gly Arg Tyr Tyr Leu Gln Asn Ala Ser Leu Ser Arg
755 760 765
Ala Ala Ala Leu Ala Ile Gly Glu His Leu Gln His Ile Thr Leu Gly
770 775 780
Ser Asn Ile Ser Thr Thr Gly Ala Leu Leu Ser Ile Leu Asp Arg Ile
785 790 795 800
Asp Asn Leu Leu Ser Cys Phe Ile Leu Gly Leu Leu Pro Thr Ser Ser
805 810 815
His Asp Pro Tyr Ala Leu Arg Arg Gln Ser Leu Glu Ile Leu Thr Leu
820 825 830
Leu Tyr Thr Thr Gln Ser Ser Val Asp Ile Glu Asp Leu Phe Ala Arg
835 840 845
Leu Ile Arg His Phe Pro Ser Ser Ile Pro Asn Thr Val Trp Ser Pro
850 855 860